

# **The Health Status of Davidson County:**

## **Trends and Opportunities for Improvement**

### **1990-1996**

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October, 1997

## Acknowledgements

This report was prepared in the Division of Assessment and Surveillance, Bureau of Health Assessment and Evaluation, with contributions from Marcia Banda, Nancy Horner, Stuart Morrical, Charlene Welch, division director Michael Pisarcik, and bureau director Bart Perkey. Marcia Banda prepared the maps. The principal author was Lois Joellenbeck, Dr.P.H.

We are grateful to the following people for providing assistance in the form of data or technical advice: Robert Anderson, Ph.D., National Center for Health Statistics; Jeff Lawrence, Metropolitan Planning Commission of Nashville and Davidson County; and Judy Dias, Richard Lassiter, David Lundburg, Jean Moss, George Plumlee, Tom Spillman, and Herb Stone of the Tennessee Department of Health. We are also grateful to the Dekalb County (GA) Board of Health for their report, *Status of Health in DeKalb*, which provided a model for this document.

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## Introduction



Both individuals and the community at large share responsibility for working toward the best possible health status for Davidson County. Information is crucial to that process. The goal of this report is to provide information which can help guide actions toward health improvement in our community.

It is difficult to summarize the complexities of health status in a community. As a starting point, this report relies on some of the most fundamental measures available, those from birth and death records and reports of notifiable diseases. The report provides both time trends and geographical analysis of birth and death data for Davidson County from 1990 to 1996. By looking at variations in births and deaths both over time and across geographical areas, we can learn about health outcomes which seem to be responding to ongoing prevention and health promotion efforts in Davidson County as well as those in need of additional or renewed efforts.

For birth data, focus was placed on some of the indicators understood to have a clear relationship to the health of the baby, such as teen pregnancy, prenatal care, and low birthweight.

For mortality data, the impact of premature mortality on our community was assessed using Years of Potential Life Lost. This measure gives greater weight to deaths at young ages than to deaths at older ages and thus can help prioritize efforts against diseases or other causes of death which take a larger toll on youth and children. The leading causes of premature mortality in Davidson County are unintentional injury, cancer, heart disease, homicide, AIDS/HIV, suicide, and stroke. Prevention measures exist that communities or individuals can employ to reduce risks from these causes.

It is helpful to have a context for health status information. For comparison purposes, this report provides measures of health status for the State of Tennessee and the United States as well as for Davidson County. Because Davidson County is an urban area, in many instances the most appropriate comparison would be with other urban areas of similar size and demographics. Though such data are not available from any federal source, a comparison of health indicators from 46 cities with populations over 350,000 indicated that Nashville's rates fall roughly in the mid-range of those observed in other urban areas<sup>1</sup>. Exceptions were prenatal care, for which Nashville's rates of adequate prenatal care exceeded all other cities, and motor vehicle mortality and lung cancer mortality, for which Nashville had rates higher than most large cities.

Results from the 1996 Nashville Health Risk Behavior Study can also help to identify some of Davidson County's health challenges. This report presents survey data indicating that there remains substantial room for improvement in increasing seat belt use and physical activity levels, and reducing smoking, high blood pressure, heavy alcohol use, and high cholesterol among Davidson County residents.

It is said that information is power, and with power and ambition we can make a change. We invite you to work with the Metropolitan Health Department as we use this information to help improve the health status of Davidson County.

Stephanie B.C. Bailey, M.D., M.S.H.S.A.  
Director of Health

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### **Positive Trends**

- Pregnancy rates in Davidson County teens 15-17 years old decreased between 1991 and 1995.
- Percentages of mothers receiving adequate prenatal care have been steadily increasing and are close to the Healthy People 2000 goal of 90% of women receiving prenatal care within the first trimester of pregnancy. The gap between white and black women in receiving adequate prenatal care has been narrowing steadily.
- Infant mortality rates in Davidson County have shown declines since 1993, with the 1996 rate of 7.2 infant deaths per 1000 live births approaching the Healthy People 2000 goal of 7.0. The gap between infant mortality rates in white and black populations has been narrowing.
- Heart disease mortality decreased in Davidson County from 1990-1995.

### **Opportunities for Intervention**

- Davidson County rates remain above national rates and Healthy People 2000 goals for teen pregnancy and low birthweight. The county is approaching the goals for adequate prenatal care and infant mortality.
- There are disparities between blacks and whites in almost all indicators of health status presented in this report, with higher indicators of poor health status among blacks compared to whites.
- Premature mortality rates in black males are considerably higher than those for other demographic groups, with higher rates of premature mortality from most of the leading causes examined in this report.
- The leading causes of premature mortality in Davidson County are unintentional injuries, cancer, heart disease, homicide, AIDS/HIV, suicide, and stroke. Widely accepted prevention or intervention measures exist for each of these causes which individuals or communities can apply to reduce their risks.
- Smoking, high blood pressure, high cholesterol, physical inactivity, heavy drinking, and lack of seat belt use are risk factors with a direct bearing on our community's health. 1996 survey data indicate substantial room for improvement in these health risk behaviors among Davidson County residents.

## Demographics

Davidson County is the second most populated county in Tennessee, and contains the state's capitol, Nashville. Its estimated 1996 population of 535,036 people comprises about 10% of the total state population and represents a 4.7% increase over the population of 510,784 recorded by the 1990 census.

In 1996, the population was roughly 47% male and 53% female. The population in Davidson County was slightly younger than that of Tennessee as a whole; 60.7% of the population was under age 40, compared to 58.2% statewide in 1995. Davidson County's estimated population aged 65 and over was 11.3% in 1996.

According to the 1990 census, 75.9% of the population 25 years and over were high school graduates, and 24.4% were college graduates<sup>2</sup>. The U.S. Census Bureau estimated Davidson County median household income in 1993 at \$30,940, with 17.9% of the population living in poverty<sup>3</sup>.

Davidson County is more racially and ethnically diverse than the state as a whole. The estimated 1996 population was 73% white, 25% black, and 2% other races. This compares to Tennessee's population estimated to be 83% white, 16% black, and 1% other races in 1995.

### Planning Districts

For land use planning purposes, Davidson County is divided into 14 subareas, referred to in this report as planning districts, that range in size from 3 to 70 square miles. Planning district populations vary from about 3,000 to 67,000 people (Table 1). Map 1 indicates the locations and major neighborhoods in the 14 planning districts.

**Table 1: Davidson County Planning Districts**

Subarea	Name Used in this Report	% of Davidson County Land Area <sup>a</sup>	1990 Census Population <sup>b</sup> (%Total)
1	Joelton	8%	5,131 (1.0)
2	Bellshire/Union Hill	8%	16,013 (3.1)
3	Bordeaux/Whites Creek	13%	25,621 (5.0)
4	Madison/Goodlettsville	5%	37,835 (7.4)
5	East Nashville/Inglewood	4%	65,751 (12.9)
6	Bellevue	13%	25,615 (5.0)
7	Belle Meade/West Meade	5%	40,789 (8.0)
8	North Nashville	1.5%	24,377 (4.8)
9	Downtown	0.6%	3,183 (0.6)
10	Forest Hills/Oak Hill	8%	66,702 (13.1)
11	Berry Hill/Edgehill	3%	31,607 (6.2)
12	Tusculum/Crieve Hall	8%	63,327 (12.4)
13	Priest Lake/Antioch	11%	44,304 (8.7)
14	Donelson/Hermitage	11%	60,529 (11.9)

<sup>a</sup> information provided in Subarea Plans published by the Metropolitan Planning Commission of Nashville and Davidson County

<sup>b</sup> where census tracts cross subarea boundaries, the entire census tract population is included in the subarea containing the larger proportion of the census tract population

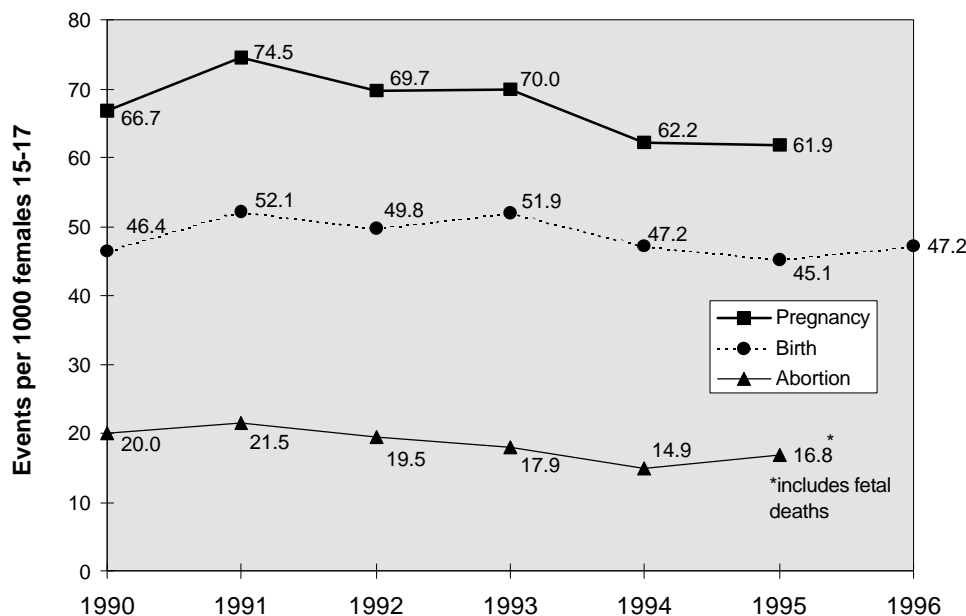
**Map 1: The Planning Districts of Davidson County**  
(not available electronically)

# Teen Pregnancy and Birth

## Key Findings

- Total pregnancy rates in Davidson County 15-17 year-olds declined slightly between 1991 and 1995. Birth rates have fluctuated over the last seven years but in 1996 were similar to 1990 rates.
- Pregnancy and birth rates remain roughly 2 times higher in the black 15-17 year-old population compared to the corresponding white teen population.

**Figure 1: Pregnancy, Birth, and Abortion Rates Among Davidson County 15-17 Year-Olds, 1990-1996**



## Trends and Observations

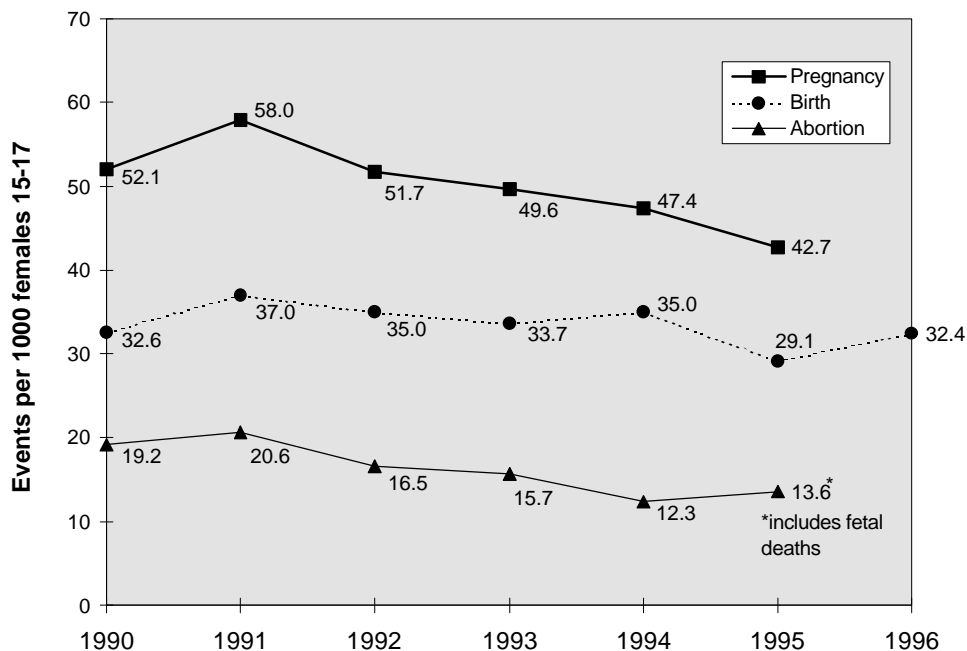
The teenage pregnancy rate among 15-17 year-olds in Davidson County declined slightly between 1991 and 1995 (Figure 1). The pregnancy rate is the sum of reported births, abortions, and fetal deaths per 1000 females in the age group. Birth rates in 15-17 year-olds remained fairly consistent over the 7-year period shown. The abortion rate in this age group decreased through 1994 (abortion data for 1996 are not available; the rate provided above for 1995 includes reported fetal deaths). In the white 15-17 year-old population, trends observed were similar to the totals (Figure 2). About 1 in every 3 pregnancies ended with abortion in 1995 for white teens of this age group.

Pregnancy and birth rates in black 15-17 year-olds reached a peak in 1993, and in 1994-1996 fluctuated at slightly lower rates (Figure 3). Rates of abortions have remained fairly consistent from 1990-1995 in the black 15-17 year-old population, with ratios of approximately 1 abortion for every 4 pregnancies.

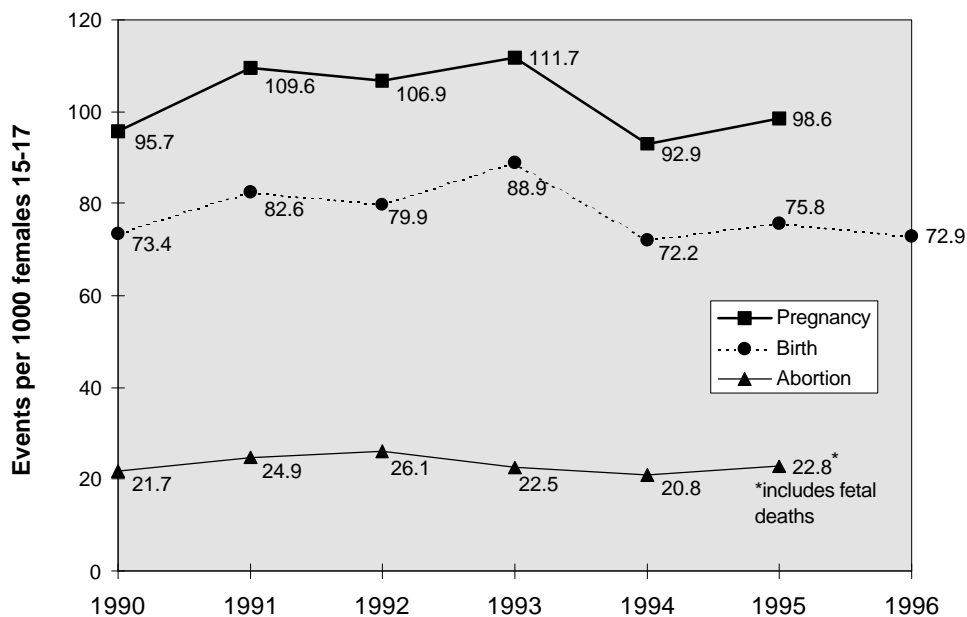


# Teen Pregnancy and Birth

**Figure 2: Pregnancy, Birth, and Abortion Rates Among White Davidson County 15-17 Year-Olds, 1990-1996**



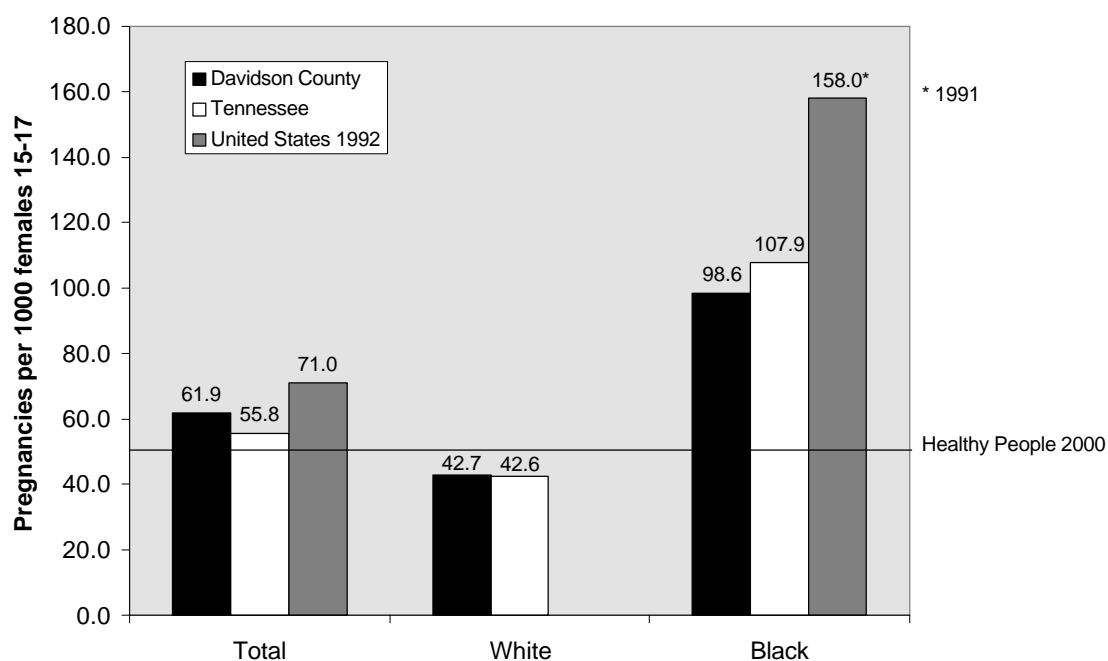
**Figure 3: Pregnancy, Birth, and Abortion Rates Among Black Davidson County 15-17 Year-Olds, 1990-1996**



## Teen Pregnancy and Birth

Examining the most recent data available, 1995 teen pregnancy rates in 15-17 year-olds in Davidson County were similar to those observed statewide but lower than the latest data available for the U.S. as a whole (1991/1992 data)<sup>4,5</sup>, and well above the Healthy People 2000 goal of 50 pregnancies per 1000 girls 15-17(Figure 4)<sup>4</sup>. Pregnancy rates in the black 15-17 year-old population were more than twice those in white 15-17 year-olds.

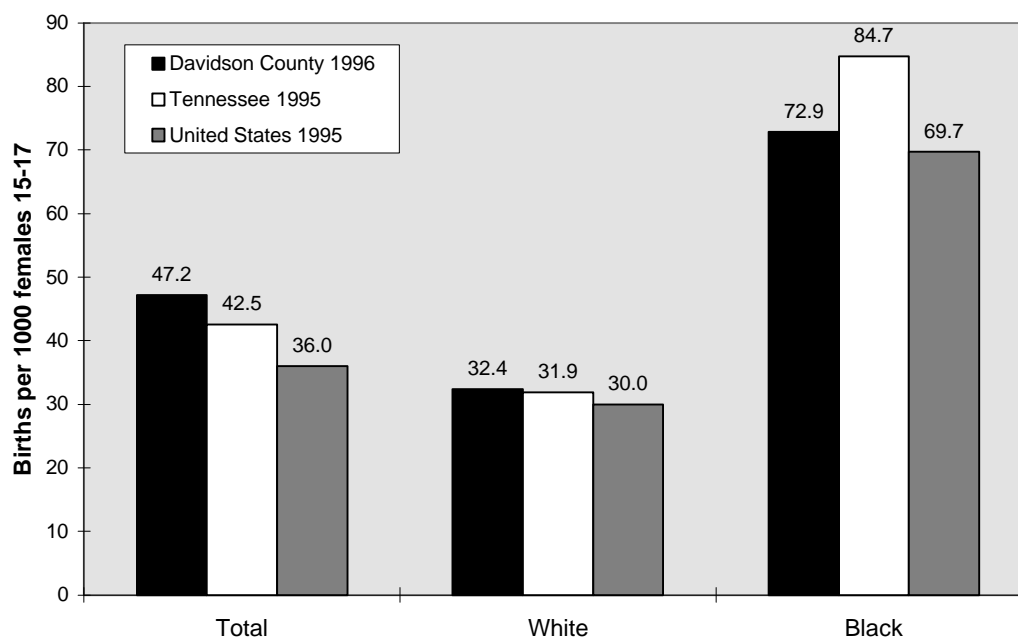
**Figure 4: Pregnancy Rates in Teens 15-17, 1995**



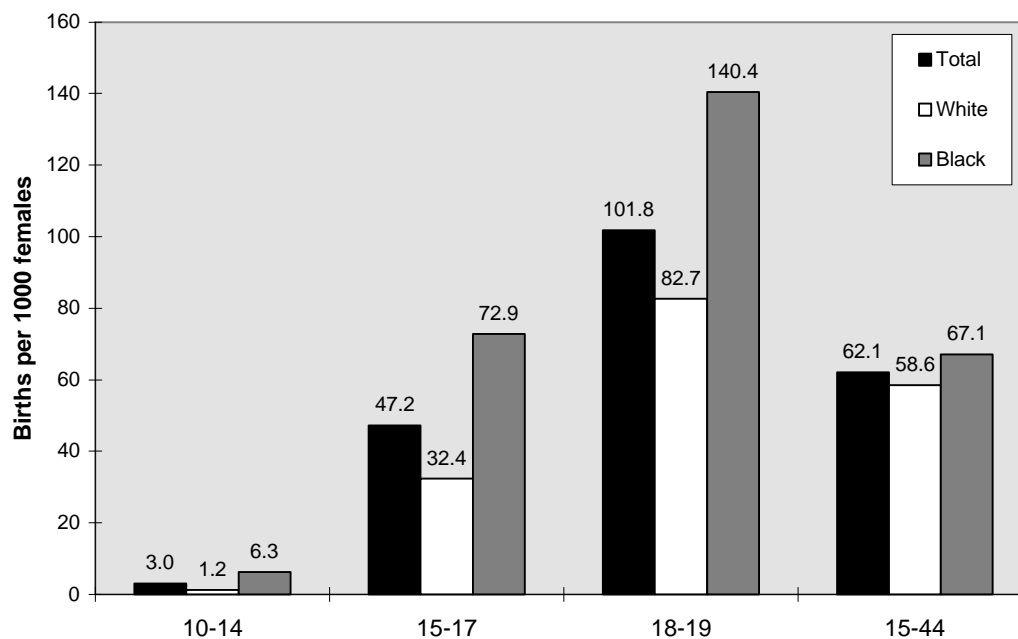
1996 birth rates for white Davidson County teens 15-17 years old were very similar to those reported for Tennessee and for the U.S. in 1995<sup>6</sup>, but total rates and rates in black teens were higher than U.S. rates (Figure 5).

Since 1991, birth rates (live births per 1000 females in the age group) have remained fairly consistent within age and race groups, but some notable differences exist between these groups (1996 data shown in Figure 6). Birth rates among all 10-14 year-olds have remained between 2 and 3 per 1000 girls 10-14. Birth rates among black 10-14 year-olds have been 5 to 10-fold higher than rates in the white 10-14 population, while among 15-17 year-olds, rates in the black population have been 2 to 3-fold higher than in whites of the same age group.

**Figure 5: Birth Rates in Teens 15-17**



**Figure 6: Birth Rates by Age Group and Race of Mother  
Davidson County, 1996**



## Teen Pregnancy and Birth

Map 2 shows average birth rates for teens 15-17 for the years 1990-1996. North Nashville had the highest average teen birth rate, while the lowest 15-17 year-old birth rates shown were in Donelson/Hermitage. Some rates are not presented because a small number of events or small population makes them unstable. Rates at the planning district level are higher than those calculated for the county as a whole because of differences in the population estimates used (see Data Sources and Methods of Analysis, p. 63).

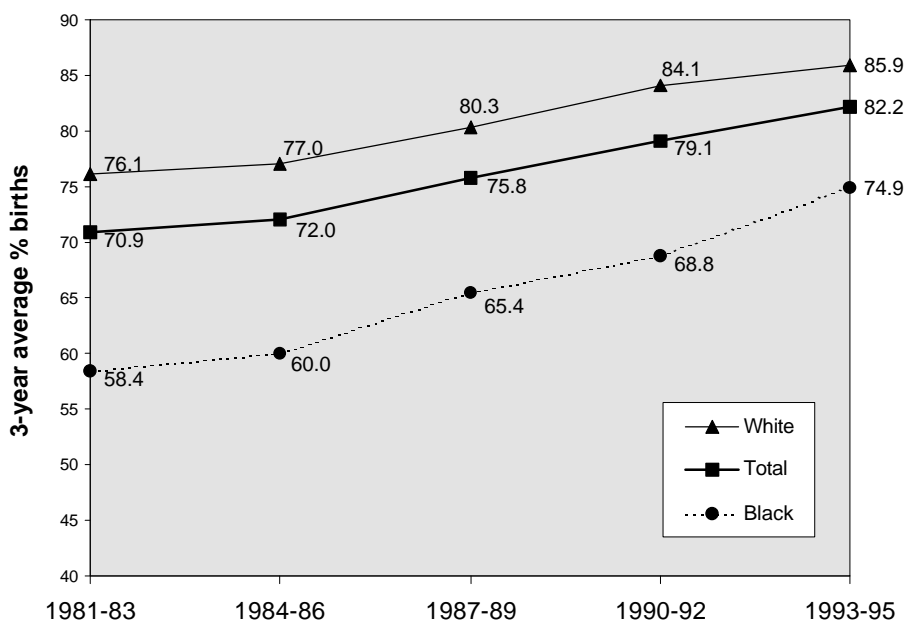
**Map 2: Average Teen Birth Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

# Prenatal Care

## Key Findings

- Percentages of pregnant women receiving adequate prenatal care in Davidson County have been improving consistently since the 1980's and surpass those for Tennessee and the U.S.
- Percentages of pregnant women receiving adequate prenatal care are lower among the black population, but the gap between percentages of white and black mothers receiving adequate prenatal care has been narrowing steadily.

**Figure 7: Percentage of Births to Mothers Receiving Adequate Prenatal Care Measured by Kessner Index Davidson County, 1981-1995**

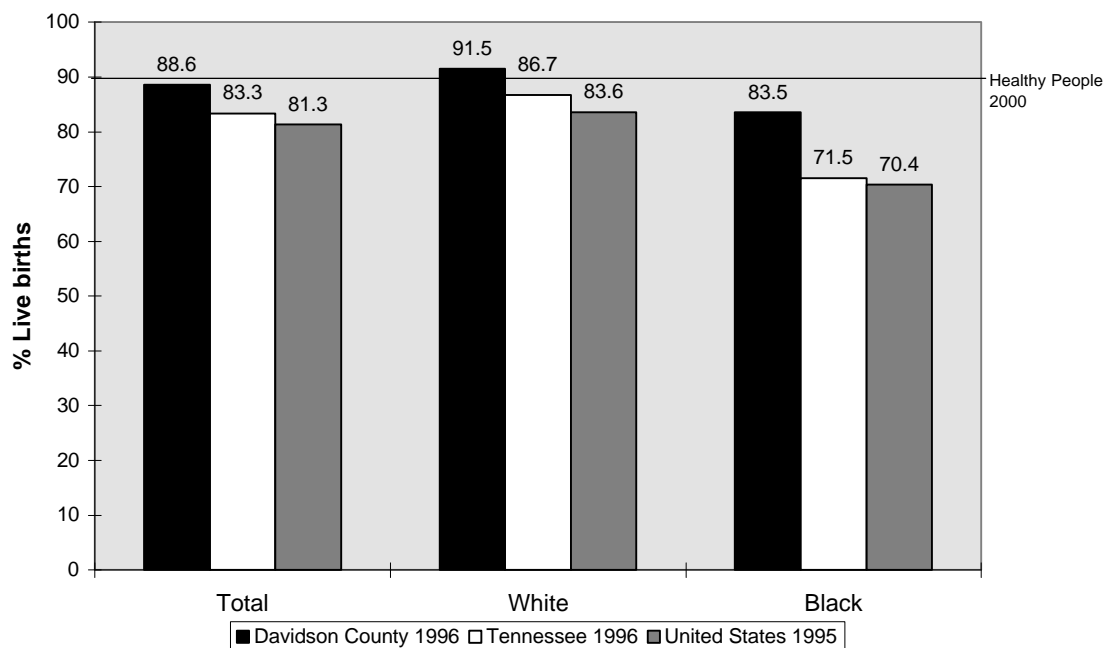


## Trends and Observations

Prenatal care in Davidson County has been improving steadily since the 1980's (Figure 7). In 1995, over 83% of Davidson County births were to mothers who had initiated prenatal care in the first trimester of pregnancy, and had nine or more prenatal visits for a 36-week pregnancy ('adequate' prenatal care according to the Kessner Index<sup>7</sup>). The percentage of mothers not receiving adequate care is higher among blacks. The percentage of mothers receiving no prenatal care has remained at 1-2% over the last five years in the population overall, but remains close to 3% among black Davidson County residents.

When adequacy of prenatal care is measured simply by whether a mother enters prenatal care within her first trimester of pregnancy, percentages of adequate prenatal care are still higher. As of 1996, 88.6% of mothers in Davidson County began prenatal care in their first trimester of pregnancy, a figure which surpasses national levels<sup>8</sup> (Figure 8). This percentage approaches the Healthy People 2000 goal that at least 90% of all women receive prenatal care in the first trimester of pregnancy<sup>4</sup>.

**Figure 8: Percentage of Births to Mothers Entering Prenatal Care in the First Trimester of Pregnancy**

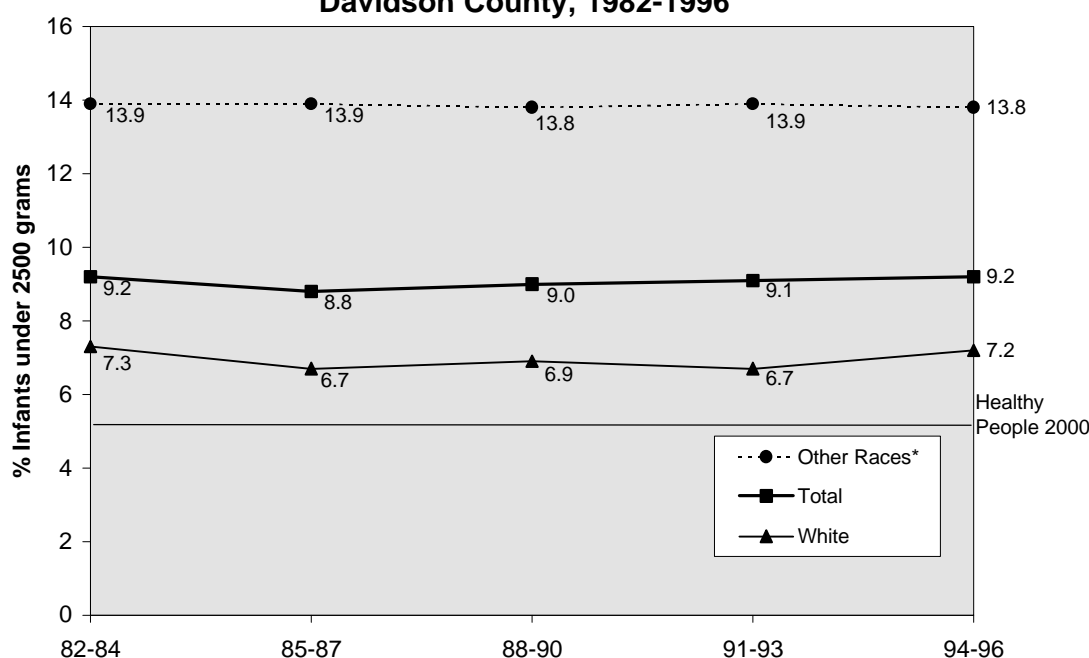


## Low Birthweight

### Key Findings

- Percentages of low birthweight infants in Davidson County have remained fairly consistent since the early 1980's.
- Percentages of low birthweight infants are slightly higher in Davidson County and Tennessee than in the U.S. as a whole, and remain above Healthy People 2000 goals.
- Black infants in Davidson County are nearly twice as likely to be low birthweight as white infants.

**Figure 9: Percentage of Low Birthweight Infants  
Davidson County, 1982-1996**



\*Other races was the category used by the State of Tennessee to present data for non-whites until 1992. In Davidson County, 'other races' are predominately black.

### Trends and Observations

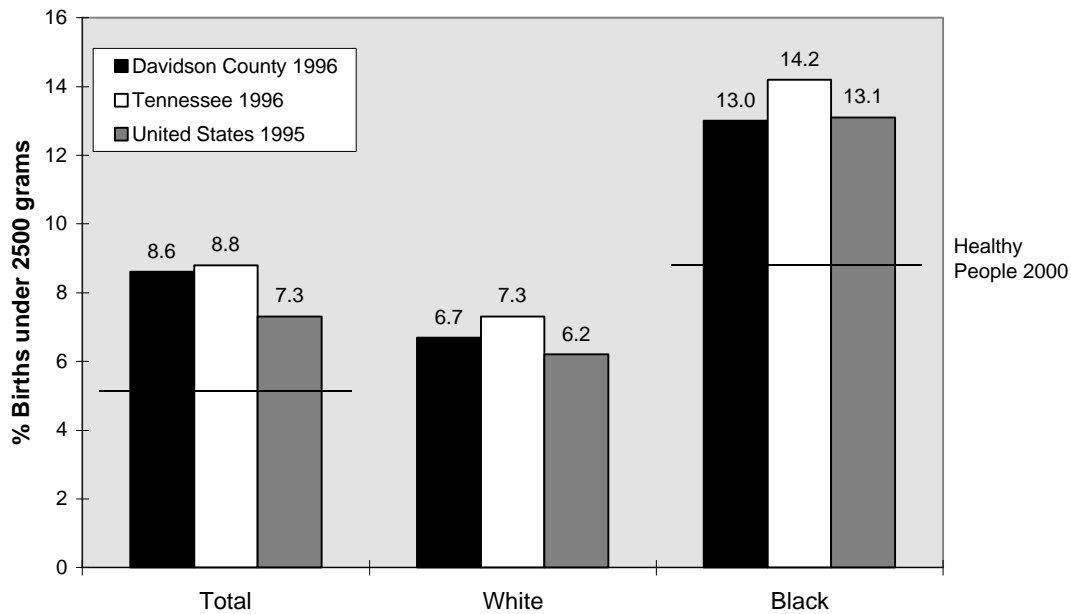
Low birthweight infants (under 2500 grams, or 5.5 lb at birth) are at much higher risk of developmental delay, infections, or mortality than other infants<sup>6</sup>. The percentage of low birthweight infants born in Davidson County remained fairly consistent through the 1980's (Figure 9). Black infants are born with low birthweight in Davidson County at roughly twice the percentages seen in the white population. Percentages of low birthweight infants are higher in Davidson County and Tennessee than in the U.S. as a whole<sup>8</sup>, and remain above the Healthy People 2000 goal of no more than 5% low birthweight infants for the total population and 9% for blacks<sup>4</sup> (Figure 10).



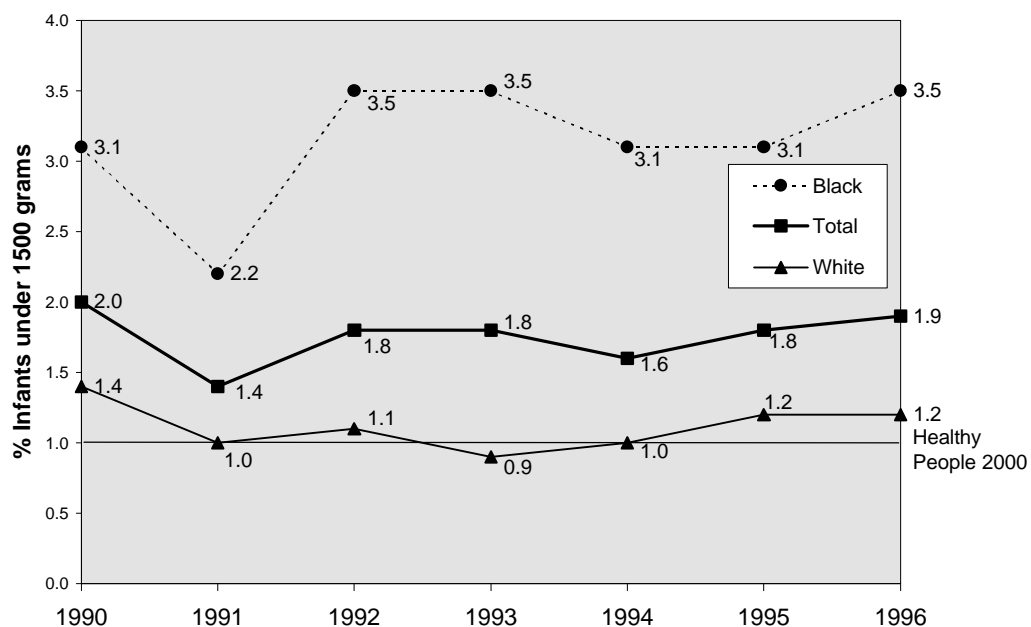
## Low Birthweight

Percentages of infants with very low birthweight (under 1500 grams, or 3.5 pounds) have fluctuated at roughly 2% of births since 1990 (Figure 11). Percentages of black infants with very low birthweight are roughly 3 times higher than percentages of very low birthweight white infants. The Healthy People 2000 goal for very low birthweight is no more than 1%<sup>4</sup>.

**Figure 10: Percentage of Low Birthweight Infants**



**Figure 11: Percentage of Very Low Birthweight Infants  
Davidson County, 1990-1996**

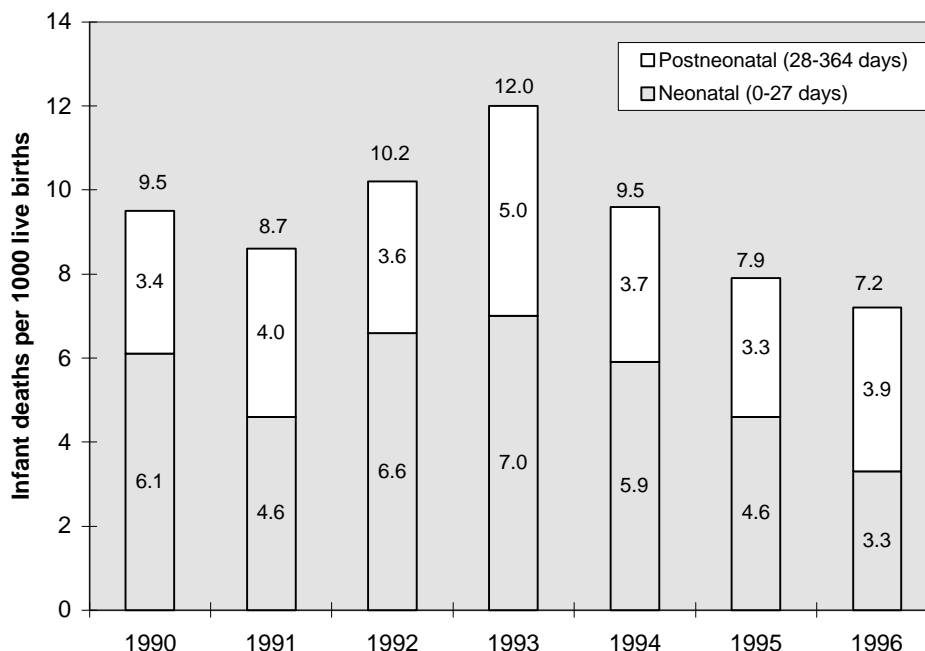


# Infant Mortality

## Key Findings

- Total infant mortality rates in Davidson County declined between 1993 and 1996.
- Infant mortality rates in Davidson County averaged over the last 3 years have been lower than Tennessee rates, and rates in blacks have been lower than rates in the black U.S. population. However, rates remain above the Healthy People 2000 goals for all infants and for black infants.
- Infant mortality rates in blacks have averaged over 2 times those in white infants over the last 3 years, but the gap in the two rates has been narrowing.
- The leading causes of death in neonates in the period 1990-1996 were disorders relating to short gestation and unspecified low birthweight (22.8%) and congenital anomalies (21.6%).
- The leading causes of death in post neonates in the period 1990-1996 were Sudden Infant Death Syndrome (41.2%), congenital abnormalities (15.0%), and injuries (7.5%).
- Infant mortality rates in the 14 planning districts of Davidson County averaged over 1990-1996 have varied up to 3-fold with lowest rates observed in the eastern and southern portion of the county, and the highest rates observed in the northwest.

**Figure 12: Infant Mortality Rate by Age  
Davidson County, 1990-1996**

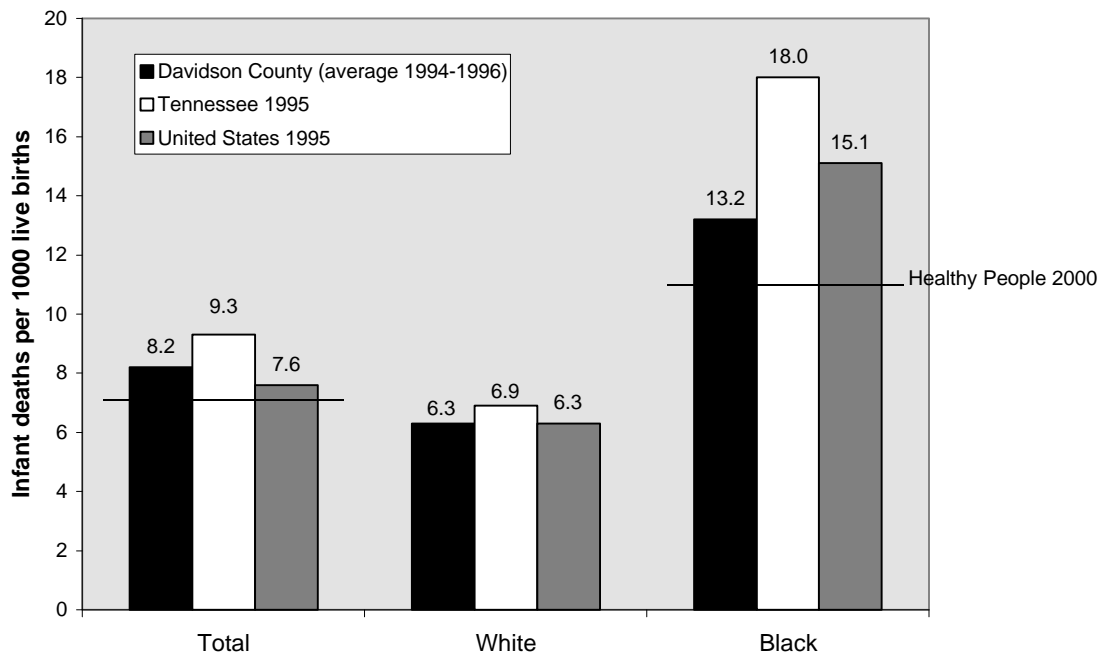


## Trends and Observations

Because they are based upon fairly small numbers, infant mortality rates (deaths in infants less than 1 year old per 1000 live births) in Davidson County can fluctuate considerably from year to year. Infant mortality rates in the total population declined from 1993 through 1996 (Figure 12). This was due in large part to a decrease in black infant mortality rates from 22.6 per 1000 live births in 1993 to 10.8 infant deaths per 1000 live births in 1996; as a result the gap in infant mortality rates between blacks and whites has been narrowing (data not shown).

Infant mortality rates in Davidson County averaged over the last 3 years have been lower than Tennessee rates and rates in blacks lower than black U.S. population rates<sup>9</sup>. However, they remain above the Healthy People 2000 goal of 7.0 infant deaths per 1000 live births for the total population, and 11.0 infant deaths per 1000 live births to blacks<sup>4</sup> (Figure 13). In Davidson County, infant mortality rates in blacks have averaged over twice those in white infants over the last 3 years.

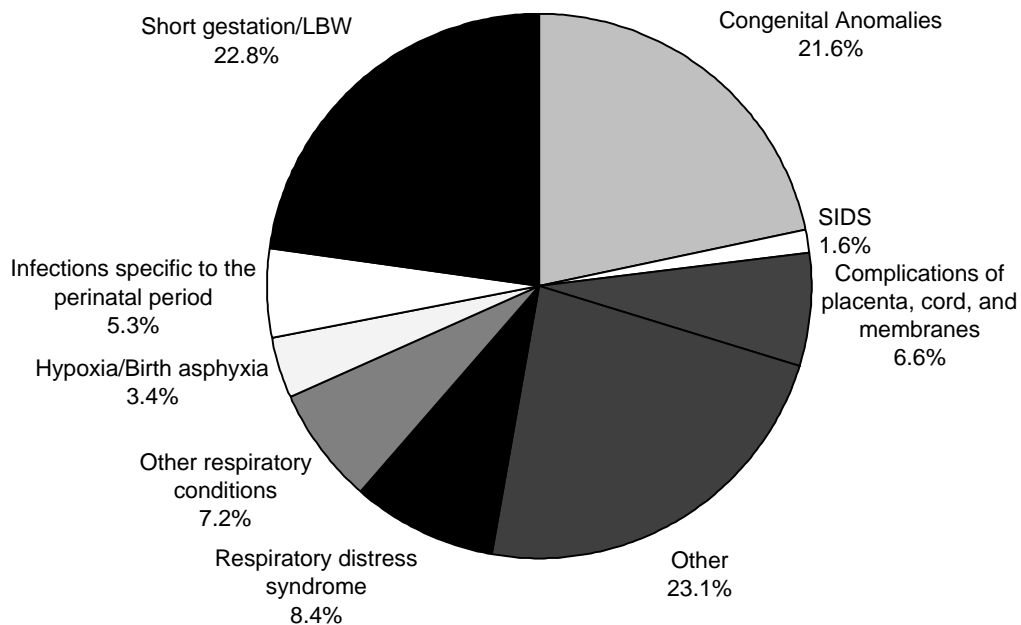
**Figure 13: Comparison of 1994-96 Average Infant Mortality Rates in Davidson County to Rates for TN and U.S.**



## Infant Mortality

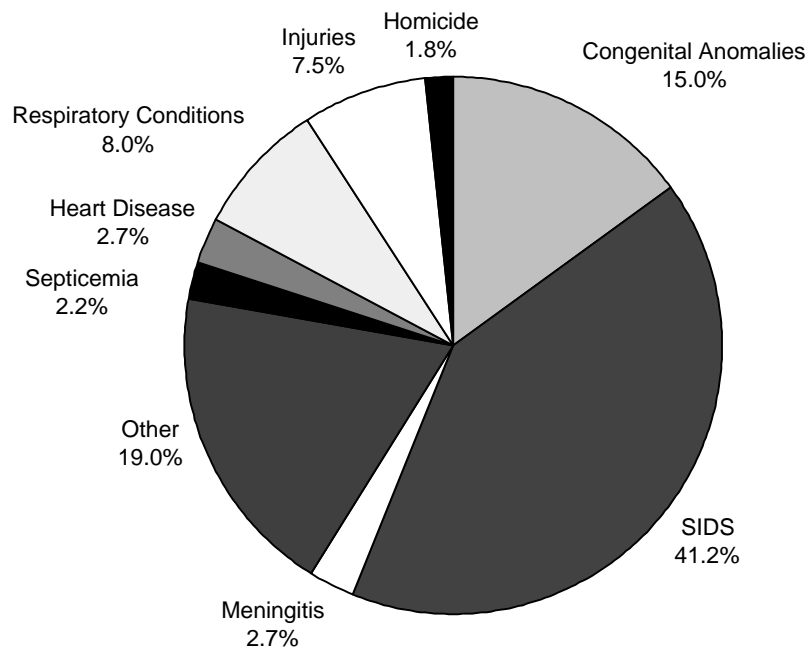
Typically, neonatal deaths (death in infants under 28 days) constitute the majority of infant deaths. From 1990-1996, 59% (320) of the 546 infant deaths in Davidson County have been neonatal deaths. The leading causes of death in neonates have been disorders relating to short gestation and low birthweight (22.8%) and congenital anomalies (21.6%) (Figure 14). Respiratory distress syndrome accounted for 8.4% of the deaths, and other respiratory conditions caused 7.2% of the deaths. The top three leading causes of death in neonates in Davidson County were the same as those observed nationwide<sup>9</sup> (data not shown).

**Figure 14: Leading Causes of Neonatal Infant Mortality  
Davidson County 1990-1996**



The leading causes of postneonatal mortality (deaths in infants 28 days up to 1 year old) from 1990-1996 were Sudden Infant Death Syndrome (41.2%), congenital anomalies (15.0%), and injuries (7.5%) (Figure 15). Respiratory conditions, including pneumonia/influenza, respiratory distress syndrome, bronchitis, and other respiratory disorders constituted 8.0% of the deaths. Leading causes of postneonatal infant death in Davidson County were similar to those observed nationwide<sup>9</sup> (data not shown).

**Figure 15: Leading Causes of Postneonatal Infant Mortality  
Davidson County 1990-1996**





## Infant Mortality

Average infant mortality rates over 1990-1996 varied almost three-fold across various planning districts of Davidson County. As Map 3 indicates, infant mortality rates in the southern and eastern portion of the county have averaged between 5.5 and 7.3 infant deaths per 1000 live births, while the highest average infant mortality rates have been in the northwest, averaging 16.1 infant deaths per 1000 live births in the Bordeaux/Whites Creek planning district.

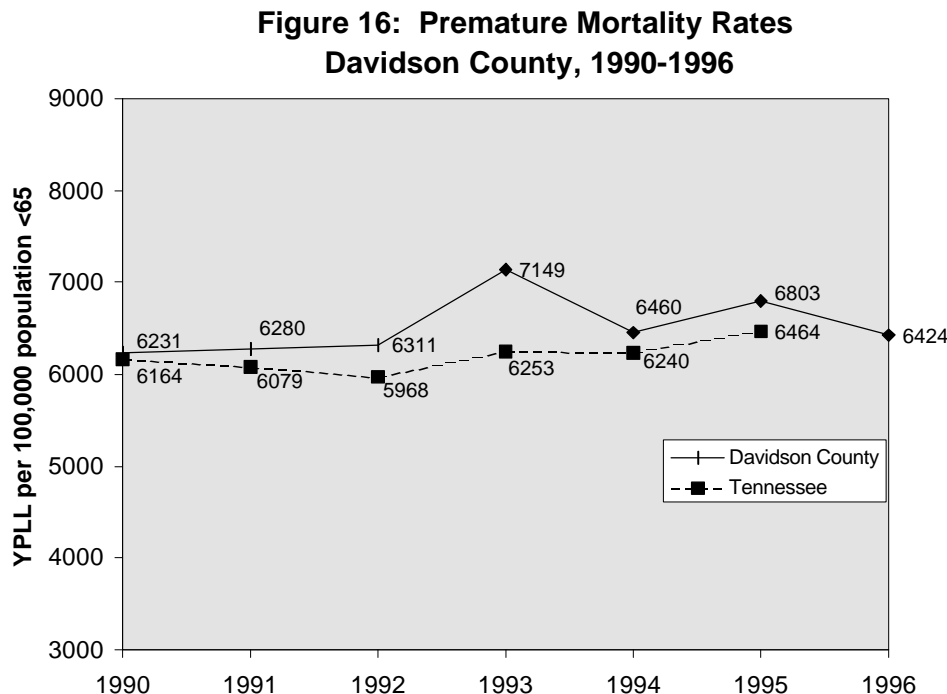
**Map 3: Average Infant Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

## Premature Mortality

- Rates of premature mortality in Davidson County over 1990-1996 have fluctuated, with a peak in 1993.
- and higher for blacks than for whites. Black males have substantially higher rates of premature mortality than other demographic groups.

Years of Potential Life Lost (YPLL) is a measure of premature mortality which takes into account the ages as well as the numbers of those who die before age 65. With more weight and take on greater importance than deaths in older people<sup>10</sup> mortality data in the following sections are presented in the form of YPLL per 100,000 population under age 65.

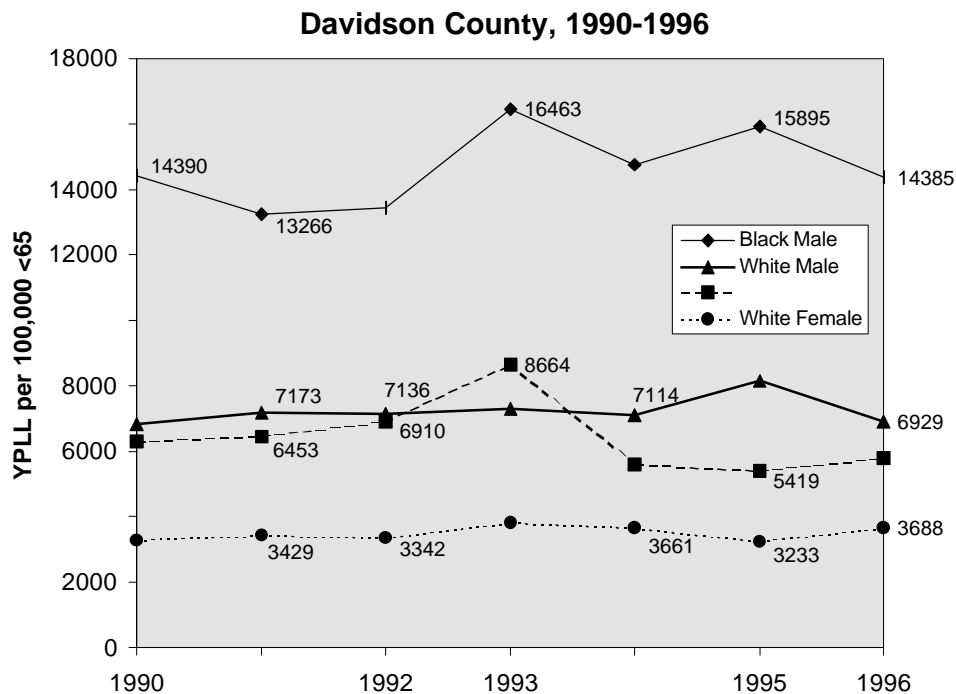
and 1992, increased sharply in 1993 and somewhat in 1995, then fell in 1996 (Figure 16). Davidson County rates have been similar to but slightly higher than Tennessee premature





## Premature Mortality

For 1990-1996, rates of premature mortality have differed between males and females and between blacks and whites in Davidson County. Premature mortality rates for males have consistently been higher than those for females, and those for blacks higher than those for whites. Thus premature mortality rates have been highest for black males, followed by white males, followed in turn by black females and white females (Figure 17). A peak in premature mortality occurred in black females and black males in 1993. Between 1995 and 1996, premature mortality rates decreased slightly in men, but increased among women.

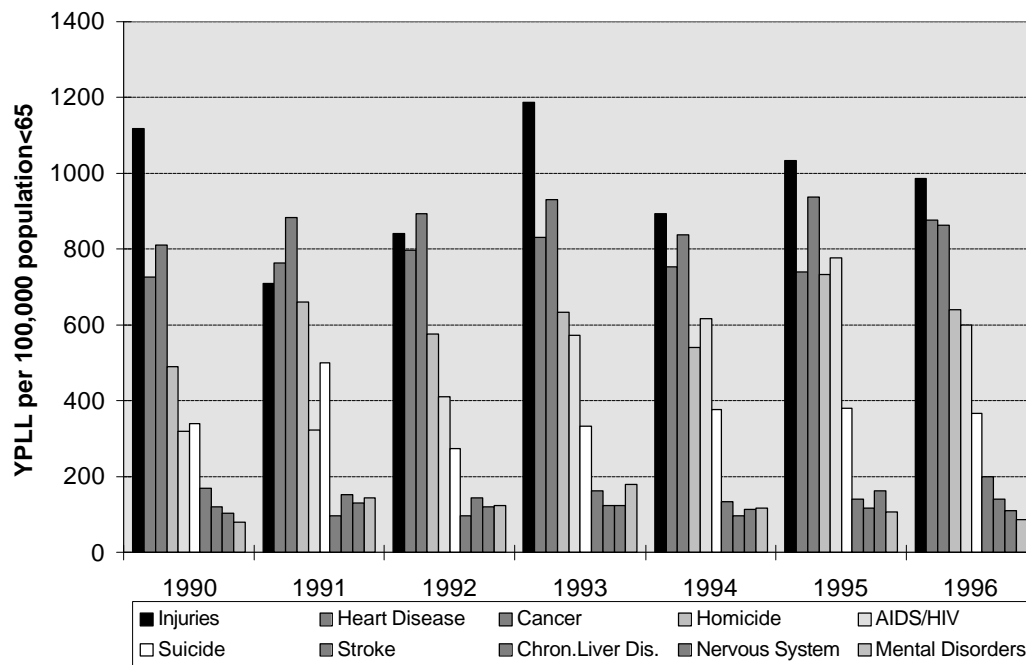


## Premature Mortality

Figure 18 shows the ten leading causes of premature mortality in the Davidson County population under 65 years of age for 1990-1996. In 1996, the chief cause of premature mortality was injuries, such as those from motor vehicle accidents, followed by heart disease, cancer, homicide, AIDS/HIV, suicide, stroke, chronic liver disease, diseases of the nervous system, and mental disorders.

The contribution to premature mortality from injuries fluctuated considerably during 1990-1996 and was particularly high in 1993, explaining part of that year's spike in premature mortality. Though cancer was the first or second leading cause of premature mortality for 1990-1995, in 1996 heart disease surpassed cancer as a cause of premature mortality. The contribution to premature mortality from AIDS/HIV increased each year from 1990-1995, but showed a decrease in 1996. Between 1995 and 1996, rates of premature mortality increased for heart disease, stroke, and chronic liver disease, but decreased for each of the other 10 leading causes of premature mortality.

**Figure 18: Leading Causes of Premature Mortality  
Davidson County, 1990-1996**



## Premature Mortality by Gender and Race Groups

### Key Findings

- Leading contributors to premature mortality are shared across gender and race groups, but the rates and relative rankings of these causes vary from group to group.
- Among white males, the chief cause of premature mortality for 1990-1996 has been unintentional injuries, primarily injuries from motor vehicle accidents.
- Homicide has been the top cause of premature mortality among black males since 1991.
- Among Davidson County women, cancer is the leading cause of premature mortality.
- Among all groups except white women, AIDS/HIV was an increasing contributor to premature mortality for 1990-1995, but premature mortality rates decreased for all groups in 1996.

### Trends and Observations

As noted in the previous section, leading causes of premature mortality in Davidson County differ by gender and race. Table 2 lists the ten leading causes of premature mortality in each major race/gender group and for the county as a whole. Injuries, cancer, homicide, and heart disease are leading causes of early mortality in all of the groups, but their ranking varies with gender and race. Contributions of AIDS/HIV and suicide in particular vary by gender and race group; AIDS/HIV is not among the ten leading causes of premature mortality for white women, and suicide is ranked lower among black females than in any other group.

Among white males, the chief cause of premature mortality in each year except 1991 has been injuries (Figure 19). Of these injuries, motor vehicle injuries contributed an average of 64% of the premature mortality from 1990-1996. Cancer and heart disease have also consistently been major contributors to premature mortality in white males from 1990-1996.

The clearest trend in premature mortality among white men under 65 was the steady increase in premature mortality from human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) from 1990-1995. Fortunately this trend was reversed with a decrease in premature mortality from AIDS/HIV in 1996. Despite the decrease, it was the fourth leading cause of premature mortality in white males in 1996.

## Premature Mortality by Gender and Race Groups

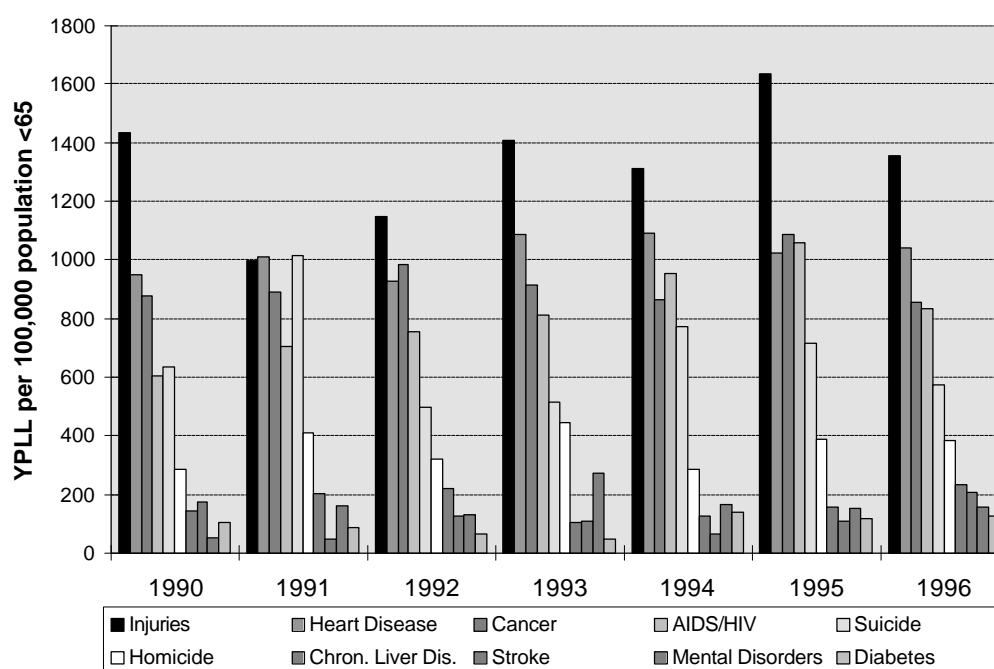
**Table 2: Ranked Causes of Premature Mortality\* in Davidson County, 1990-1996**

Rank	All	White Males	Black Males	White Females	Black Females
1	Injuries	Injuries	Homicide	Cancer	Cancer
2	Cancer	Heart Disease	Injuries	Injuries	Heart Disease
3	Heart Disease	Cancer	Heart Disease	Heart Disease	Injuries
4	Homicide	AIDS/HIV	AIDS/HIV	Homicide	Homicide
5	AIDS/HIV	Suicide	Cancer	Suicide	Nervous System
6	Suicide	Homicide	Suicide	Stroke	Stroke
7	Stroke	Chronic Liver Disease	Stroke	Nervous System	AIDS/HIV
8	Chronic Liver Disease	Mental Disorders	Chronic Liver Disease	COPD <sup>a</sup>	Mental Disorders
9	Nervous System	Nervous System	Mental Disorders	Diabetes	Diabetes
10	Mental Disorders	Stroke	Diabetes	Chronic Liver Disease	Suicide

\* Based Upon Average Years of Potential Life Lost per 100,000 population under 65

<sup>a</sup> COPD is chronic obstructive pulmonary disease

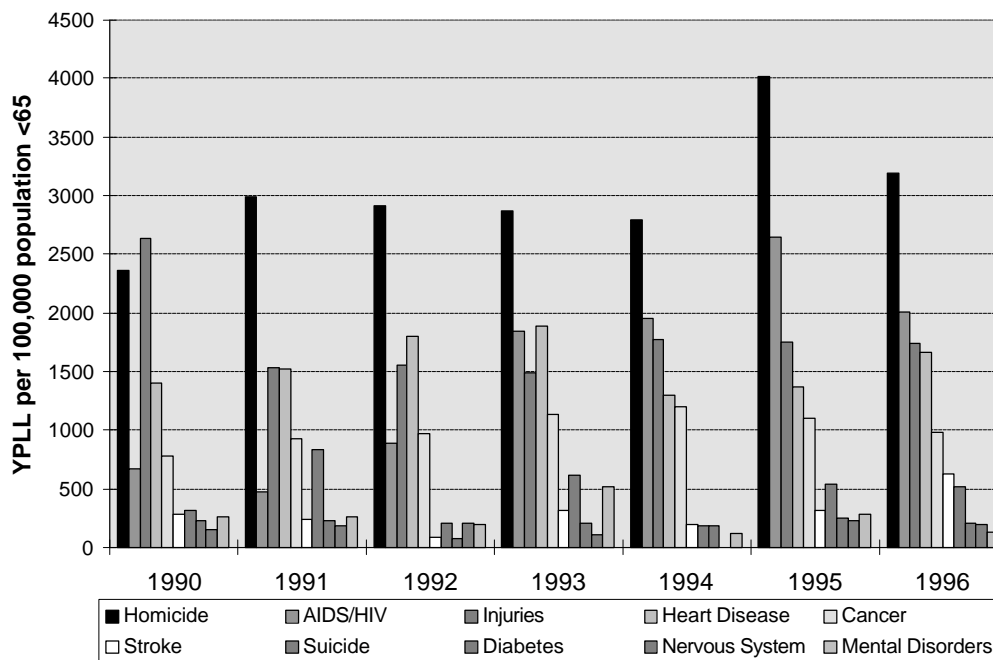
**Figure 19: Premature Mortality in White Males Davidson County, 1990-1996**



## Premature Mortality by Gender and Race Groups

Among black males, homicide has been the leading cause of premature mortality by a substantial margin since 1991 (Figure 20). In 1996, homicide was responsible for 22% of premature mortality in Davidson County black males, down from 25% in 1995. Premature mortality rates in black males have been higher than those in white males for most other causes of death as well. From 1991 to 1995 there was a steady increase in the rate of premature mortality from AIDS/HIV, but this trend was reversed with a decrease in 1996. Premature mortality rates from injuries are higher in black males than those observed in the white male population, with an average contribution from motor vehicle injuries of 46%.

**Figure 20: Premature Mortality in Black Males  
Davidson County, 1990-1996**

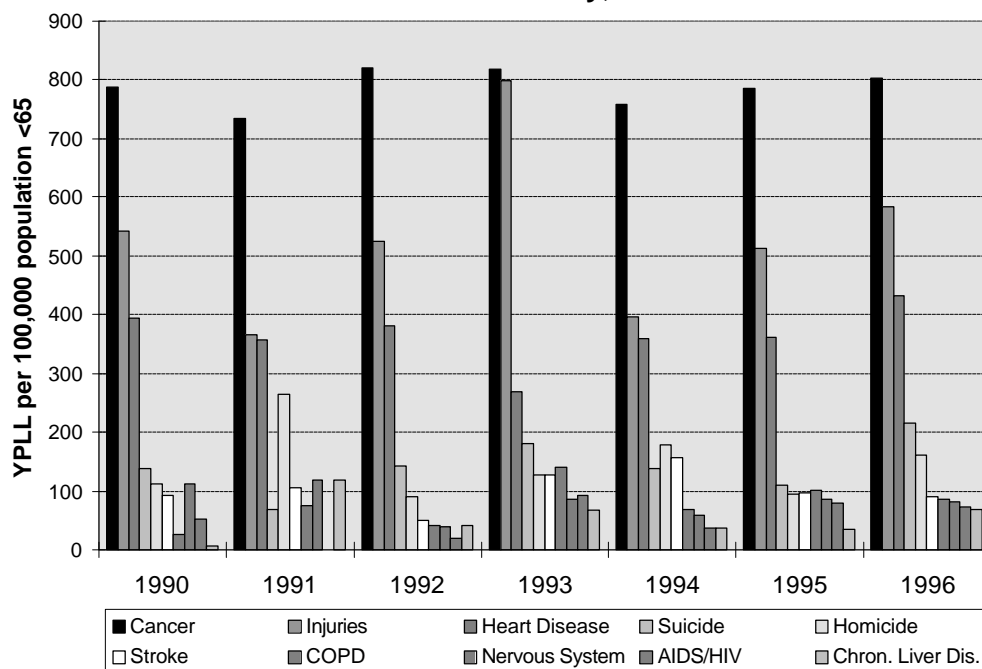


Figures 21 and 22 indicate the ten leading causes of premature mortality among Davidson County females. In white females, the top three causes of premature mortality have consistently been cancer, injuries, and heart disease. Of the premature mortality from injuries in white females, motor vehicle accidents have contributed 69%.

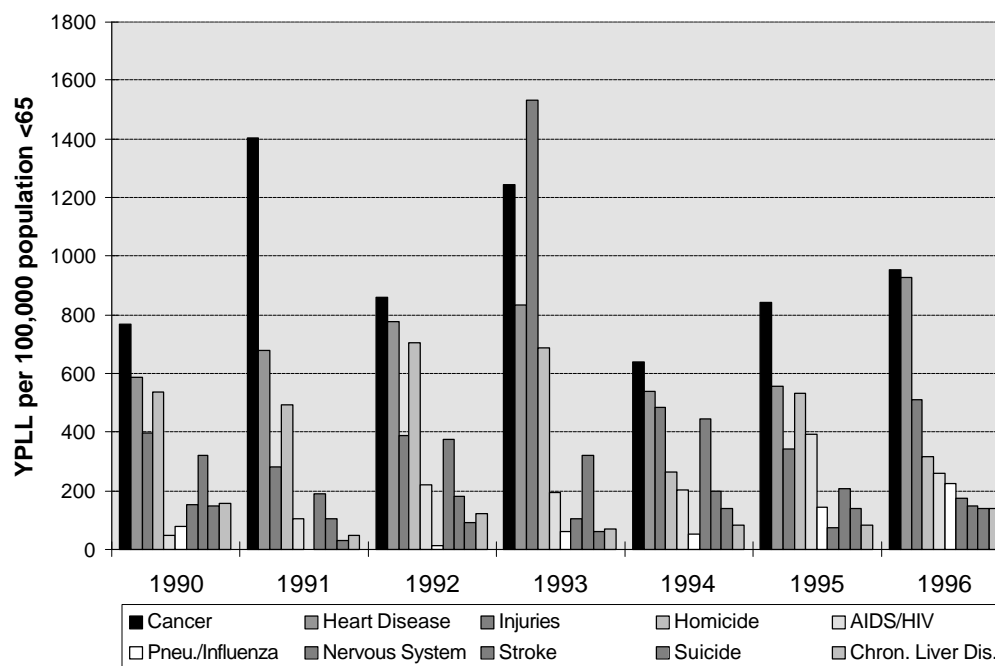
In black females, average rates of premature mortality are up to four times higher than those for white females for all categories examined except suicide. No clear trends are evident in the data except the increasing contribution to premature mortality of HIV and AIDS through 1995. Motor vehicle accidents contribute 49% of the premature mortality from injuries in black females.

# Premature Mortality by Gender and Race Groups

**Figure 21: Premature Mortality in White Females  
Davidson County, 1990-1996**



**Figure 22: Premature Mortality in Black Females  
Davidson County, 1990-1996**



# Unintentional Injury

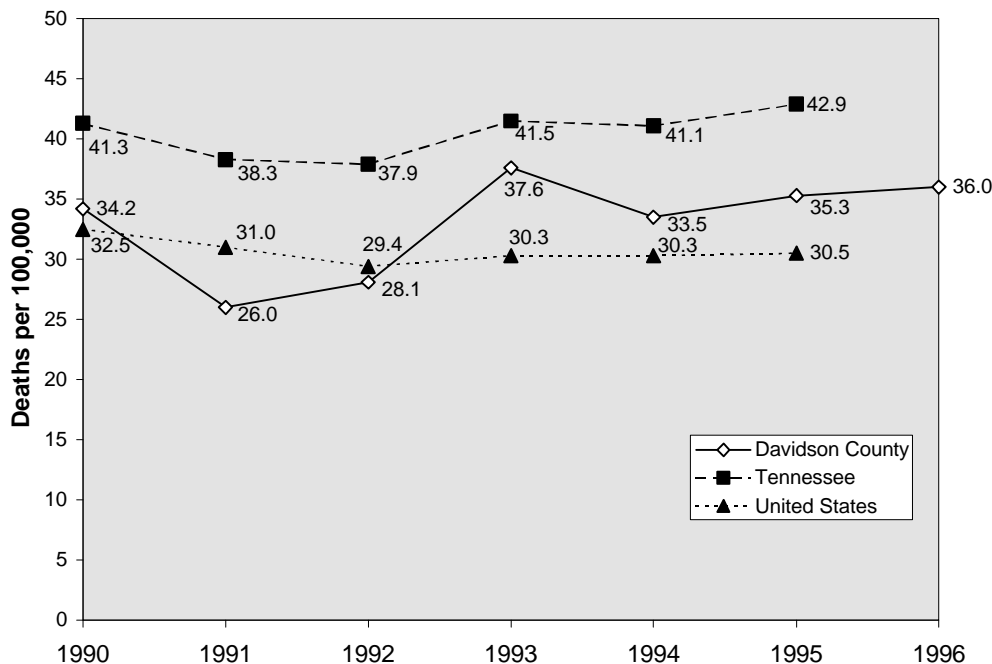
## Key Findings

- Over the years 1990-1996, unintentional injuries (such as falls and motor vehicle accidents) have been the leading cause of premature mortality in Davidson County.
- A chief cause of unintentional injuries in Davidson County is motor vehicle accidents, which were responsible for 60% of the years of potential life lost from injuries between 1990 and 1996.

## Trends and Observations

Figure 23 shows age-adjusted mortality rates for unintentional injuries in Davidson County, Tennessee, and the United States from 1990-1996. U.S. rates have shown a slight decrease over this time period, while rates in Tennessee have increased slightly. Because of the smaller population involved, Davidson County rates fluctuate more than rates of larger areas. Since 1993, Davidson County rates have been higher than national rates but lower than rates for the state of Tennessee.

**Figure 23: Age-Adjusted Unintentional Injury Mortality Rates  
1990-1996**



The Davidson County average rate of premature mortality for people under 65 from unintentional injuries over 1990-1996 was 966.8 YPLL per 100,000. The planning district with the highest average premature mortality rate for unintentional injuries over the 7-year period was East Nashville/Inglewood, while the lowest average rate was in Forest Hills/Oak Hill (Map 4).



**Map 4: Average Unintentional Injury Premature Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

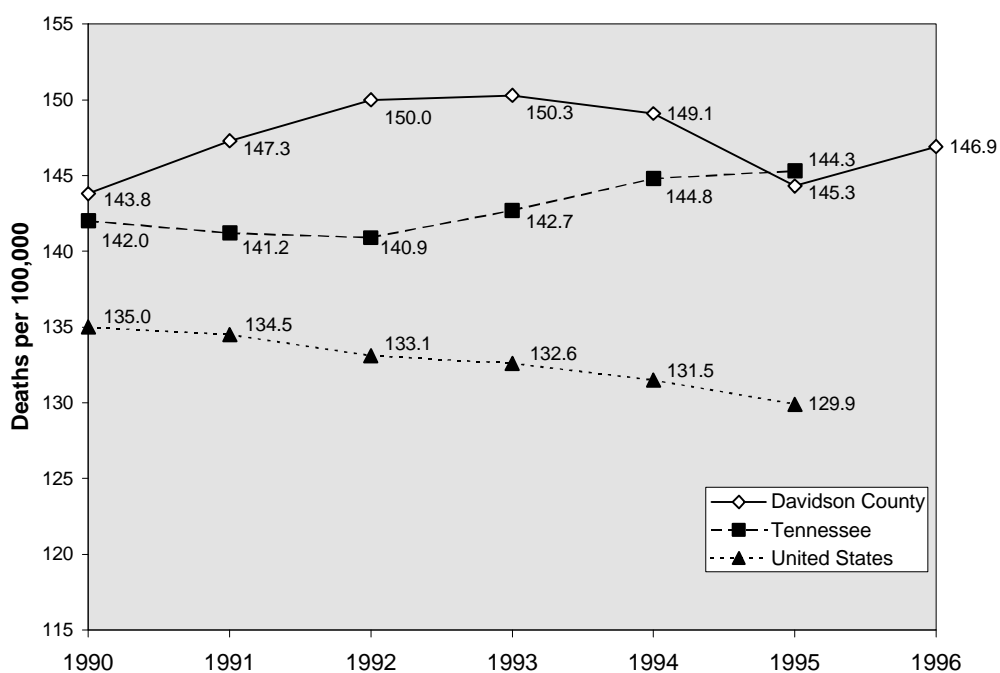
## Key Findings

- Over 1990-1996, cancer has been the second leading cause of premature mortality in Davidson County.
- In 1996, cancers of the respiratory organs, digestive organs, and breast were the leading causes of premature mortality from cancer in Davidson County. Together they accounted for 60% of cancer mortality.

## Trends and Observations

Figure 24 shows age-adjusted mortality rates for cancer in Davidson County, Tennessee, and the United States from 1990-1996. While nationwide rates have shown a steady decrease over this time period, rates in Davidson County and Tennessee have not. In 1995, Davidson County rates were similar to those statewide, but well above rates in the United States as a whole.

**Figure 24: Age-Adjusted Cancer Mortality Rates, 1990-1996**



The leading categories of cancer mortality in Davidson County in 1996 are shown in Table 3. Cancers of the respiratory organs, digestive organs, and breast together accounted for 60% of the premature mortality from cancer in 1996, and these three types were also the leading causes of cancer mortality in 1995.

**Table 3: Premature Mortality from Cancer in Davidson County Residents under 65, 1996**

Cancer Type	Number of Deaths	Premature Mortality (YPLL)	% of Total Cancer Premature Mortality
Respiratory Organs	127	1106	26.9
Digestive Organs	75	763	18.6
Breast	47	609	14.8
Other	40	521	12.7
Brain	21	374	9.1
Genital Organs	20	206	5.0
Leukemia	10	195	4.7
Melanoma	9	147	3.6
Urinary Organs	7	104	2.5
Lip, Oral Cavity, Pharynx	8	81	2.0



## Cancer

The Davidson County average premature mortality rate from cancer during 1990-1996 was 879.5 YPLL per 100,000 people under 65. The area within the county with the highest average cancer premature mortality rate over the 7-year period was Bordeaux/Whites Creek, while the lowest average rate was in Forest Hills/Oak Hill (Map 5).

**Map 5: Average Cancer Premature Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

# Heart Disease

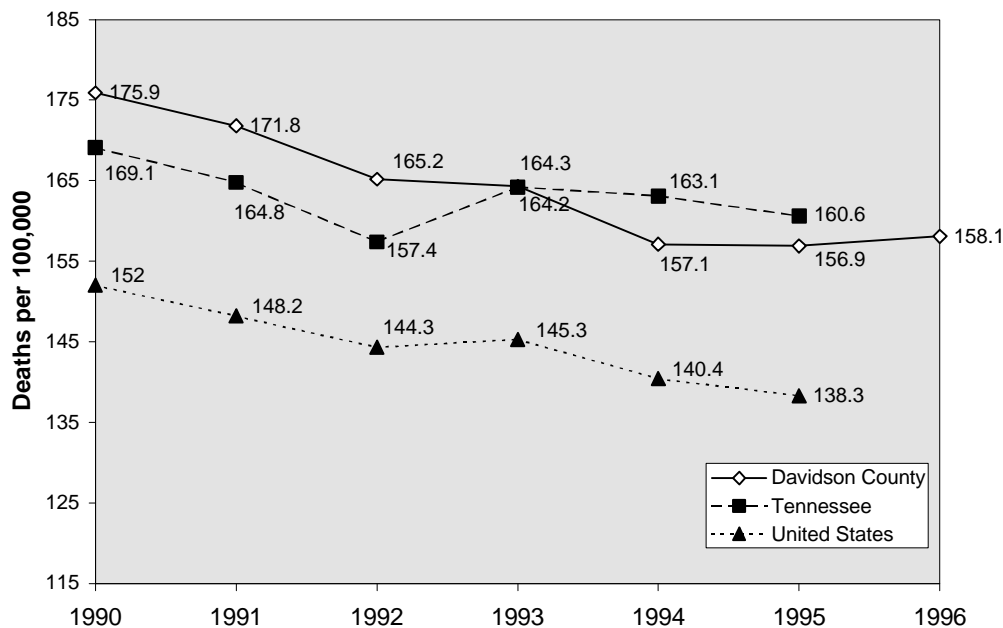
## Key Findings

- Over 1990-1996, heart disease was the third leading cause of premature mortality in Davidson County.
- Davidson County age-adjusted mortality rates from heart disease have declined since 1990, mirroring declines also seen at the national level. Despite these declines, mortality rates for Davidson County remain substantially higher than those for the United States.

## Trends and Observations

Figure 25 shows age-adjusted mortality rates for heart disease in Davidson County, Tennessee, and the United States from 1990-1996. While heart disease mortality rates in Davidson County showed a steady decline through 1994 similar to that seen nationally, the decreases slowed in 1995 and 1996. Davidson County and Tennessee heart disease mortality rates remain substantially higher than U.S. rates, a phenomenon which has been observed for decades in the southeastern region of the country<sup>11</sup>.

**Figure 25: Age-Adjusted Heart Disease Mortality Rates, 1990-1996**



The Davidson County average rate of premature mortality from heart disease over 1990-1996 was 783.5 YPLL per 100,000 people under 65. The area within the county with the highest average rate over the 7-year period was North Nashville, while the lowest was Tusculum/Crieve Hall (Map 6).

**Map 6: Average Heart Disease Premature Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

# Homicide

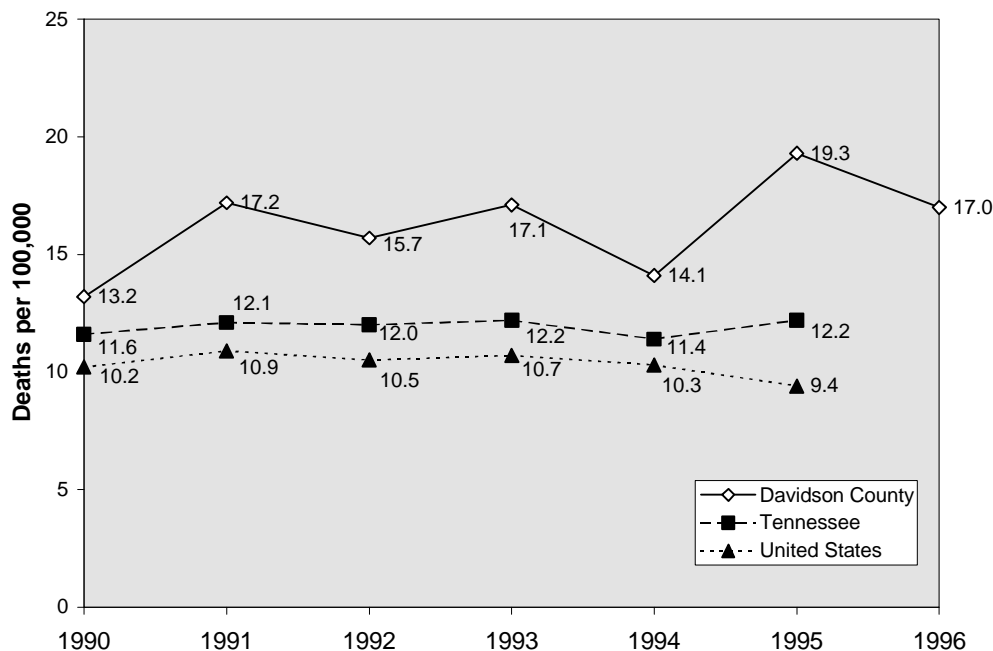
## Key Findings

- Over 1990-1996, homicide was the fourth leading cause of premature mortality in Davidson County.
- Davidson County age-adjusted mortality rates from homicide have fluctuated over 1990-1996, with a decrease observed between 1995 and 1996.

## Trends and Observations

Figure 26 shows age-adjusted mortality rates for homicide in Davidson County, Tennessee, and the United States from 1990-1996. At the national level, mortality from homicide has shown a decline since 1993, while homicide mortality rates at the state level have held fairly constant. In Davidson County, rates have fluctuated at levels higher than both state and national levels.

**Figure 26: Age-Adjusted Homicide Mortality Rates, 1990-1996**



The Davidson County average rate of premature mortality from homicide over 1990-1996 was 611.0 YPLL per 100,000 people under 65. The area within the county with the highest average rate over the 7-year period was North Nashville, while the lowest was in Tusculum/Crieve Hall (Map 7).



**Map 7: Average Homicide Premature Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

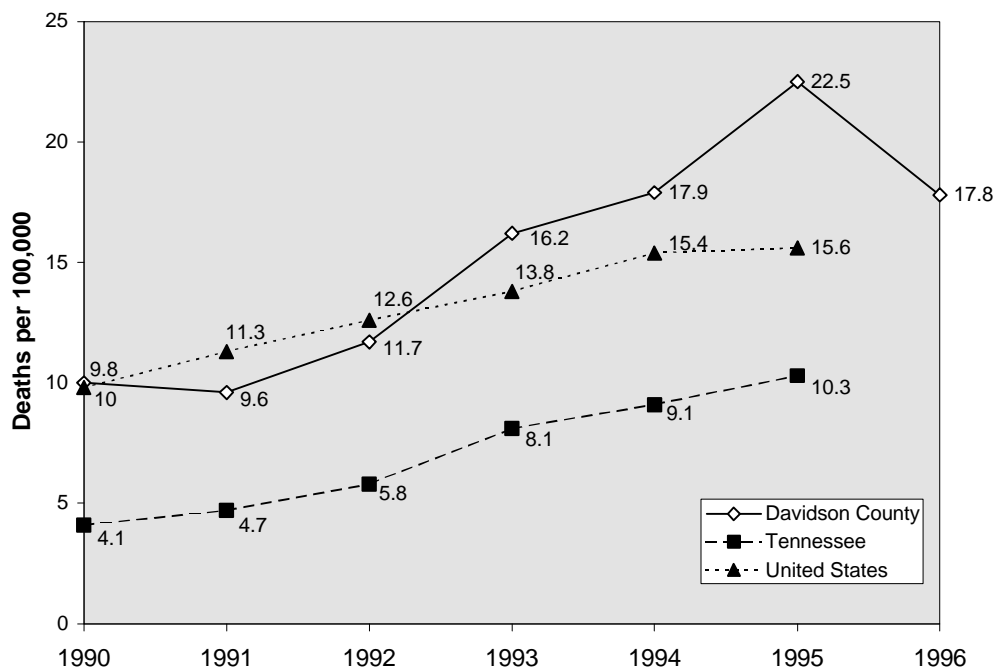
### Key Findings

- Over 1990-1996, AIDS/HIV was the fifth leading cause of premature mortality in Davidson County.
- Age-adjusted mortality rates from HIV infection increased rapidly in Davidson County from 1991 to 1995, but showed a decline in 1996.

### Trends and Observations

Figure 27 shows age-adjusted mortality rates for AIDS/HIV in Davidson County, Tennessee, and the United States from 1990-1996. Mortality from human immunodeficiency virus infection increased through 1995 at the local, state, and national levels. Rates in Davidson County, however, have increased more rapidly than in Tennessee or the U.S. as a whole. In 1996, Davidson County experienced a decrease in mortality from HIV infection which was also expected at both the national and Tennessee state levels<sup>8,12</sup>.

**Figure 27: Age-Adjusted AIDS/HIV Mortality Rates, 1990-1996**



The Davidson County average rate of premature mortality from AIDS/HIV over 1990-1996 was 517.4 YPLL per 100,000 people under 65. The area within the county with the highest average premature mortality rate over the 7-year period was Berry Hill/Edgehill, while the area with the lowest average rate was Bellevue (Map 8).

**Map 8: Average AIDS/HIV Premature Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

# Suicide

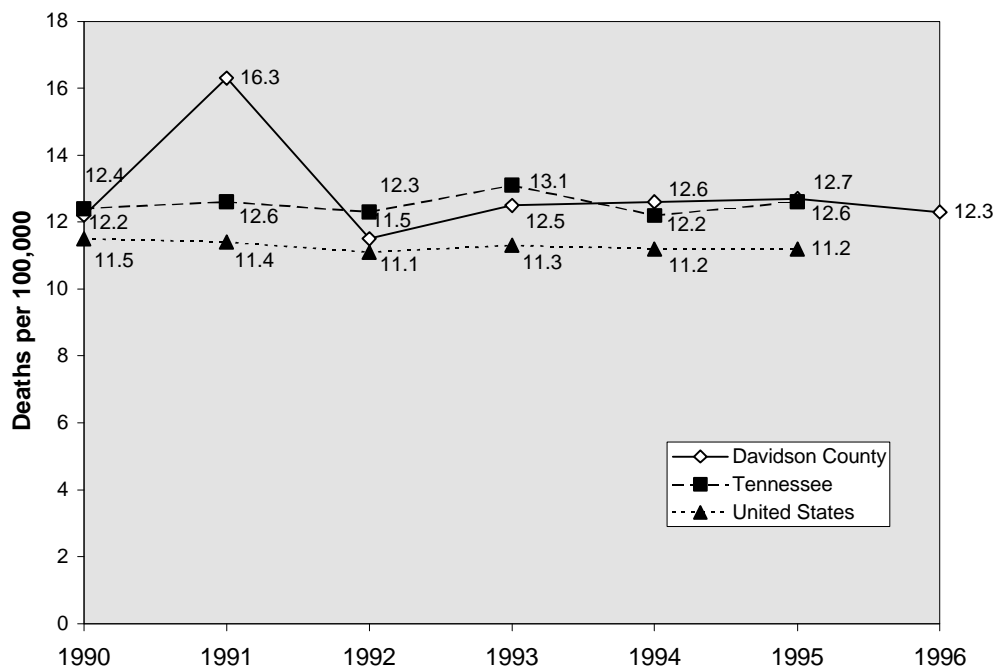
## Key Findings

- Over 1990-1996, suicide was the sixth leading cause of premature mortality in Davidson County measured by Years of Potential Life Lost per 100,000 population under 65.
- Except for a spike in 1991, age-adjusted mortality rates from suicide have remained fairly consistent over 1990-1996 at levels similar to those seen at state and national levels.

## Trends and Observations

Figure 28 shows age-adjusted mortality rates for suicide in Davidson County, Tennessee, and the United States for the years 1990-1996. Davidson County experienced a sharp increase in suicide mortality in 1991, but since then suicide rates have been similar to those of Tennessee and the United States as a whole.

**Figure 28: Age-Adjusted Suicide Mortality Rates, 1990-1996**



The Davidson County average rate of premature mortality from suicide during 1990-1996 was 366.6 YPLL per 100,000 people under 65. The area within the county with the highest average premature mortality rate over the 7-year period was Berry Hill/Edgehill, while the lowest rate was in Tusculum/Crieve Hall (Map 9).

**Map 9: Average Suicide Premature Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

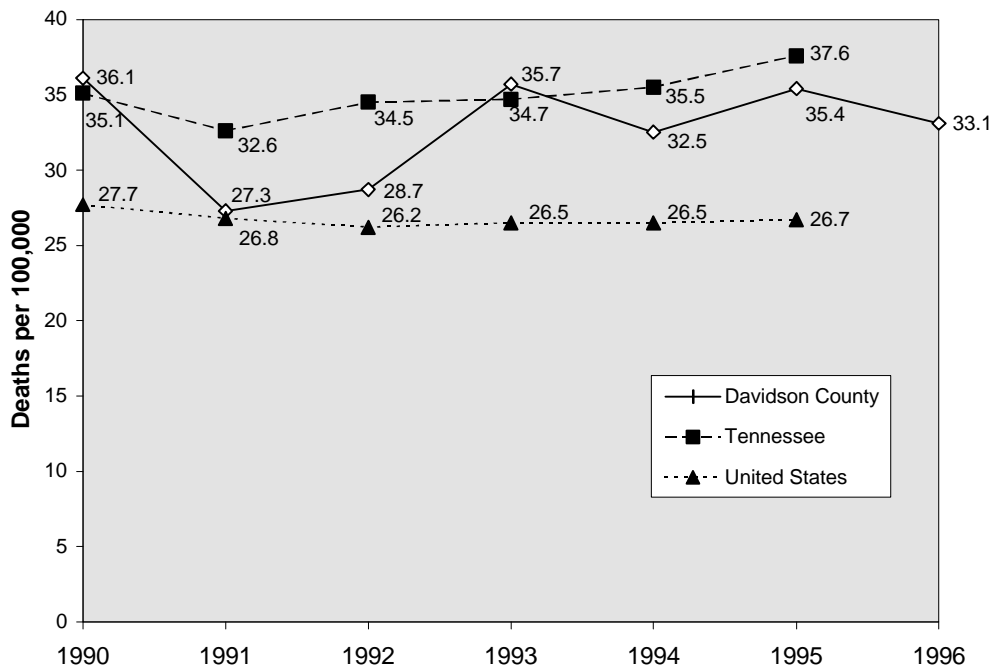
## Key Findings

- Over 1990-1996, stroke (cerebrovascular disease) was the seventh-ranked cause of premature mortality in Davidson County.
- Age-adjusted mortality rates for stroke in Davidson County have fluctuated but have tended to fall between rates for Tennessee and the United States as a whole.

## Trends and Observations

Figure 29 shows age-adjusted mortality rates for stroke in Davidson County, Tennessee, and the United States for the years 1990-1996. Because of the smaller numbers involved, rates for Davidson County fluctuate more than state or national rates. In general, however, mortality rates from stroke in Davidson County have been higher than national stroke mortality rates, and similar to the rates observed for the state of Tennessee as a whole. Tennessee is considered part of the ‘stroke belt,’ where for decades rates of cerebrovascular disease have been higher than other regions of the country<sup>11,13</sup>.

**Figure 29: Age-Adjusted Stroke Mortality Rates, 1990-1996**



The Davidson County average rate of premature mortality from stroke was 143.0 YPLL per 100,000 people under 65 for the years 1990-1996. The area within the county with the highest average premature mortality rate over the 7-year period was North Nashville, while the lowest average rate shown on the map was in Madison/Goodlettsville (Map10). Rates for many of the planning districts were not sufficiently stable over the 7 years to present here (see technical notes).

**Map 10: Average Stroke Premature Mortality Rates, 1990-1996**  
**Davidson County, Tennessee**  
(not available electronically)

## Mortality in Residents 65 and Older

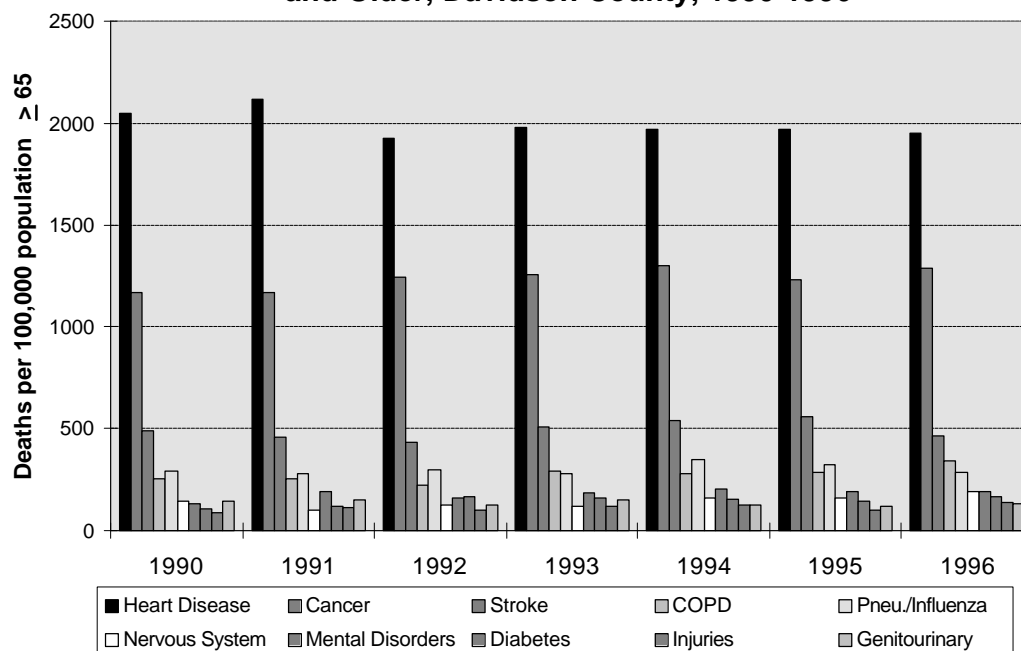
### Key Findings

- Leading causes of death among Davidson County residents 65 and older have remained fairly consistent over 1990-1996.
- The top five causes of death in this group were heart disease, cancer, stroke, chronic obstructive pulmonary disease, and pneumonia/influenza.
- Total mortality rates and mortality rates from the leading causes of death in this age group were higher than rates for the United States and some Tennessee rates.

### Trends and Observations

From 1990-1996, the leading causes of mortality in those over 65 years of age have remained rather steady in Davidson County (Figure 30). Heart disease has consistently been responsible for the largest proportion of deaths in this age group, followed by cancer and stroke. Pneumonia and influenza, chronic obstructive pulmonary disease (COPD), mental disorders, nervous system diseases, diabetes, genitourinary diseases, and injuries are also among the ten leading causes of death in this age group.

**Figure 30: Leading Causes of Mortality in Residents 65 and Older, Davidson County, 1990-1996**



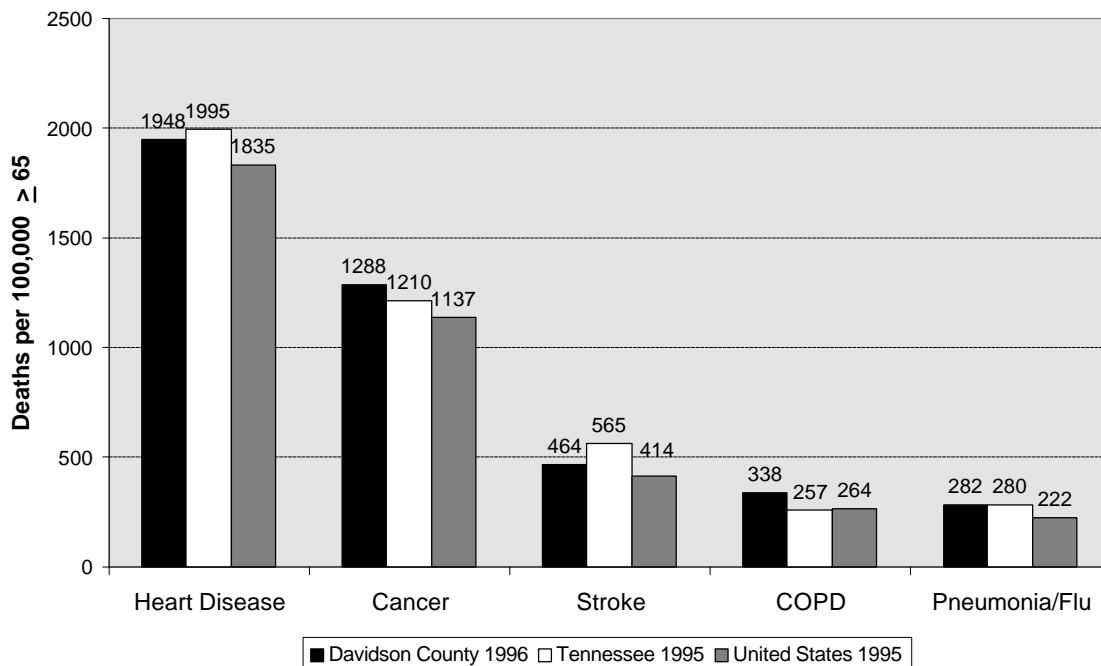


## Mortality in Residents 65 and Older

Frequent causes of death categorized under mental disorders are senile and presenile dementia, arteriosclerotic dementia, nonorganic psychoses, and alcohol dependence syndrome. Diseases of the nervous system which are frequent causes of death in Davidson County residents over 65 include Alzheimer's disease and Parkinson's disease. Causes of death categorized as genitourinary include kidney disease, kidney failure, and urinary tract infections.

Figure 31 below shows a comparison of rates of the top five leading causes of death in Davidson County residents aged 65 and older in 1996 with those in the Tennessee and United States populations 65 and older in 1995 (most recent available data). While rates of heart disease, stroke, and pneumonia/influenza in Davidson County were lower than or similar to rates for the state as a whole, cancer and COPD rates are higher than those of Tennessee. Davidson County rates for all of the top five leading causes of death in this age group were higher than those observed in the comparable United States population. Mortality rates from all causes in this age group were 5,761 per 100,000 in Davidson County in 1996, and 5,630 and 5,053 per 100,000 population respectively in Tennessee and the United States in 1995.

**Figure 31: Five Leading Causes of Death in People 65 and Older, Davidson County, 1996**



## Health Risk Behaviors

A health risk behavior survey was carried out in Davidson County from June to October of 1996. The survey gathered information by telephone from 2800 Davidson County residents about their general health, physical and mental functioning, health care coverage, and several health risk behaviors.

The maps on the following pages present results for a small subset of the survey questions by planning district. Survey responses on the topics of seat belt use, smoking, high blood pressure, high cholesterol, heavy alcohol consumption, and physical activity are presented because of their clear relationship with illness and mortality from the leading causes of premature mortality in Davidson County.

Some important caveats should be noted in interpreting this survey data. The average response rate was 47%, with a range in the planning districts from 39% to 63%. Since less than half of the residential households that were contacted participated in the survey, respondents are not likely to be truly representative of Davidson County residents. Residents who were available during the time of day and day of the week the survey was conducted may have special characteristics that could introduce some bias into the survey results. The survey results still provide some valuable insight into health risk behaviors of Nashvillians. In the sections which follow, data are reported for Davidson County and for each of the planning districts. Related data for the United States are presented to provide context, but the numbers are not directly comparable to those for Davidson County because of different methodologies in data collection.

### **Seat Belt Use**

Unintentional injuries were the leading cause of premature mortality in Davidson County from 1990-1996, and motor vehicle accidents were responsible for 60% of this mortality. [Alone, motor vehicle injury ranks just below homicide and above AIDS/HIV as a cause of premature mortality in Davidson County.] Seat belts are highly effective in preventing injury and death from motor vehicle accidents, but despite seat belt laws many people still do not wear them regularly. Responses to the Health Risk Behavior Survey suggest that 69% of Davidson County residents “always” wear a seat belt when driving or riding in a car, while 10% reported seldom or never using one. Females were significantly more likely than males to always use seat belts (72% versus 58%). Map 11 shows the percentage of residents of the 14 planning districts that report always wearing their seat belts. Bellevue was the area with the highest percentage reporting they always use a seat belt (80%), while only 54% of North Nashville survey respondents reported always using a seat belt.

**Map 11: 'Always' Use Seatbelts, 1996**  
**Davidson County, Tennessee**  
(not available electronically)

### Smoking

Cigarette smoking is an important risk factor for disease and early death from cancer, heart disease, stroke, chronic obstructive pulmonary disease, and several other diseases. Smoking during pregnancy is associated with low birthweight, intrauterine growth retardation, infant illnesses and death, and negative consequences for child health and development<sup>6</sup>. Smoking cessation or prevention is one of the most important steps an individual can take to prevent illness and early death. Responses to the Health Risk Behavior Survey indicate that 28% of Davidson County residents are current smokers. Smoking is significantly related to age (residents 25-64 smoke more) and income (lower income residents smoke more). By comparison, 1993 data for the United States indicate that an estimated 25% of Americans were current smokers<sup>14</sup>. Map 12 shows the percentage of residents of the 14 planning districts who reported that they were current smokers. The highest percentage of current smokers was in Bordeaux/Whites Creek (43.0%), while the lowest percentage was in Bellevue (19.6%).

### Physical Activity

Lack of physical activity is another important risk factor for a variety of the diseases that contribute to premature mortality in Davidson County. Risks from heart disease, colorectal cancer, and stroke are all increased with physical inactivity<sup>15</sup>. U.S. data for 1991 indicated 24% of the population to be entirely sedentary, engaging in no leisure time physical activity<sup>16</sup>. The Davidson County Health Risk Behavior Survey suggested that 27% of the county was physically inactive (no physical activity in the last month). Younger people, males, and people of higher income were more likely to be physically active. Examined by planning district, percentages of people reporting no physical activity in the past month range from a low of 23% in Priest Lake/Antioch to a high of 38% in North Nashville (Map 13).

**Map 12: Current Smokers, 1996**  
**Davidson County, Tennessee**  
(not available electronically)

**Map 13: No Physical Activity in Past Month, 1996**  
**Davidson County, Tennessee**  
(not available electronically)

### **High Blood Pressure**

High blood pressure is a risk factor for heart disease and stroke (cerebrovascular disease). Risk for these diseases increases steadily with increasing blood pressure, so that the definition of ‘high’ is arbitrary<sup>17</sup>. Physical exams carried out nationwide between 1988 and 1991 indicated that 23% of the U.S. adult population had blood pressure at or over 140/90mm Hg<sup>14</sup>. Results of the Health Risk Behavior Survey in Nashville indicate that 31% of people in Davidson County have been told they have high blood pressure by a health care provider. Older residents, females, and people of lower income were more likely to report having high blood pressure. In the planning districts, this percentage ranged from a high of 39% in North Nashville to a low of 24% in Tusculum/Crieve Hall (Map 14).

### **High Blood Cholesterol**

Elevated blood cholesterol is associated with increased risk of heart disease and stroke. In the United States, more than half of adults have total cholesterol levels at or over 200 mg/dL, and 27% have blood cholesterol levels at or above 240 mg/dL<sup>18</sup>. Overall, 31% of Davidson County reported that a health care provider had told them they had high blood cholesterol. In the planning districts, this percentage was highest in Bordeaux/Whites Creek (37%) and lowest in Bellevue (22%) (Map 15).

**Map 14: High Blood Pressure, 1996**  
**Davidson County, Tennessee**  
(not available electronically)



**Map 15: High Blood Cholesterol, 1996**  
**Davidson County, Tennessee**  
(not available electronically)

### **Alcohol Consumption**

Heavy alcohol use is a clearly a risk factor for mortality from injury, particularly injury from motor vehicle accidents. Heavy alcohol use is also a possible risk factor for heart disease<sup>15</sup>. The 1996 Nashville Health Risk Behavior Survey suggested that 11% of Davidson County residents had had five or more alcoholic beverages on at least one occasion in the past month. Three percent had done so four or more times in the past month. Younger people, males, and higher income residents were more likely to have done so. In the planning districts, this percentage ranged from 6% in Bordeaux/Whites Creek up to 13% in Belle Meade/West Meade, North Nashville, Tusculum/Crieve Hall, and Priest Lake/Antioch (Map 16).

**Map 16: Heavy Alcohol Consumption, 1996**  
**Davidson County, Tennessee**  
(not available electronically)

# Communicable Diseases

## Key Findings

- Since 1990, there has been a steady decrease in incidence of reported influenza in Davidson County.
- Incidence of reported vaccine-preventable diseases has been low in Davidson County, except for Chickenpox for which a vaccine has only recently become widely available.

## Trends and Observations

Reported rates of communicable diseases in Davidson County for 1990-1996 are presented in Table 4. Apparent increases in the incidence of several different communicable diseases in 1992 are partly the result of improvements in disease surveillance which took place in the county at that time.

The incidence of reported gastrointestinal infections in Davidson County has remained fairly consistent for 1990-1996, except for 1992 when sharp increases in case reports took place for several infection types and continued into 1993 with Shigellosis.

No outbreaks or trends are clearly evident for vector-borne diseases over 1990-1996, or for most of the vaccine-preventable diseases. Incidence rates suggest that immunization efforts for the vaccine-preventable diseases have been fairly successful in Davidson County. Both 1992 and 1995 saw substantial increases in reported Chickenpox incidence over the previous years, however. Chickenpox vaccine did not become widely available until 1996.

Two factors contributed to the significant rise in reported cases of non-A non-B hepatitis in 1992. A test for the hepatitis C virus became available, and at the same time, a concerted effort was made by the Health Department to improve the reporting of notifiable diseases. The increased reporting by diagnostic laboratories and physicians significantly increased all hepatitis statistics for 1992. For reporting years 1990-1995, hepatitis was reported only as A, B, or non-A non-B. Hepatitis C was not reported separately until 1996.

Since 1990, there has been a steady decrease in incidence of reported influenza.

## Communicable Diseases

**Table 4: Incidence\* of Reportable Communicable Diseases  
Davidson County 1990-1996**

DISEASE	1990	1991	1992	1993	1994	1995	1996
Gastrointestinal Infections (infections of the stomach and intestine)							
Botulism (food)	0	0	0	0	0	0	0.2
Campylobacter enteritis	6.1	8.2	15.9	7.5	7.5	7.8	4.9
Shigellosis	2.9	3.7	47.9	44.2	7.0	13.7	3.2
Salmonella	21.7	13.9	25.5	11.7	9.5	7.9	9.9
Giardiasis	4.1	6.6	33.3	14.2	4.9	4.9	4.5
Vector-borne							
Lyme	1.2	0.2	1.5	1.1	0	0.2	0.4
Rocky mountain spotted fever	1.0	1.4	0.8	0.6	0.6	0.6	1.1
Malaria	0.8	0.2	1.5	0.4	0.4	1.1	0.9
Hepatitis							
Hepatitis A	8.0	1.2	10.4	2.7	12.9	5.8	3.2
Hepatitis B	36.2	68.7	172.4	68.5	58.9	57.5	38.7
Hepatitis C	0	0	0	0	0	0	3.4
Hepatitis Non-A Non-B	2.2	24.0	438.8	105.6	14.0	4.5	2.6
Vaccine Preventable Diseases							
Measles	0	0.2	0	0	0	0	0
Mumps	3.1	1.6	0.4	0.2	0.2	0	0
Rubella	0	0	0	0	0	0	0
Pertussis	0.8	0.6	0.4	5.2	0.4	0	0.9
Chickenpox	45.2	88.4	151.2	43.4	35.0	96.0	51.8
Meningitis							
Meningococcal	1.6	0.2	0.8	0.2	0.2	1.7	0.9
Haemophilus Influenzae	1.4	0.4	2.3	0	0.4	0.2	0
Aseptic	9.6	11.7	19.3	3.6	2.3	4.7	0.9
Other	2.7	5.1	9.7	2.7	2.1	4.9	0.4
Tuberculosis							
Tuberculosis	15.5	16.8	13.5	18.8	17.0	14.8	13.1
Other Communicable diseases							
Encephalitis	0.8	1.0	0.4	0	0.4	0	0
Influenza	500.8	765.2	392.4	271.5	162.6	74.8	52.7
Legionellosis	0.4	0.6	0	0.2	0.4	0	0.4
Typhoid	0	0.2	0	0	0.4	0	0

\*reported cases per 100,000 population

## AIDS Incidence

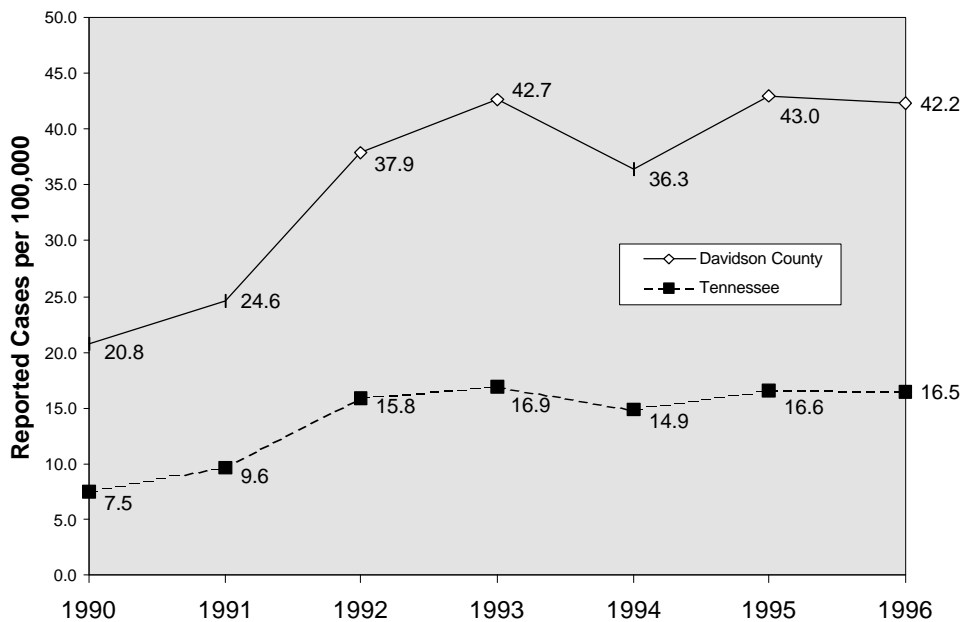
### Key Findings

- Reported incidence of acquired immunodeficiency syndrome (AIDS) appears to have increased since the early 1990's.
- AIDS incidence is higher in the black population than in the white population, but rates in the Davidson County black population are lower than those in the overall U.S. black population.

### Trends and Observations

Figure 32 below shows AIDS incidence for Davidson County and Tennessee for 1990-1996. The cases included were residents of Davidson County or of Tennessee at the time of diagnosis, with data updated through June of 1997. The rates have been adjusted for delays in reporting, but have not been adjusted for a change in the AIDS case definition effective in January of 1993. This expansion in the case definition can explain much of the apparent increase in AIDS cases in 1992 and 1993.

**Figure 32: Reported Incidence\* of AIDS  
Davidson County and Tennessee, 1990-1996**



\*adjusted for reporting delay, with case counts updated as of June 97

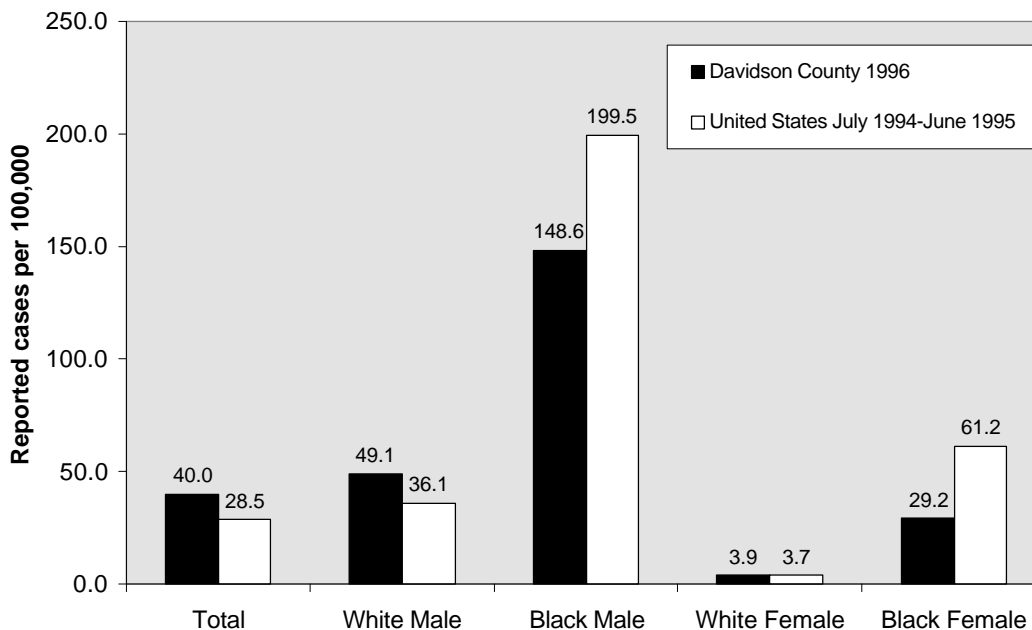
Reporting of infection with human immunodeficiency virus (HIV) began in Tennessee in 1992. Table 5 shows the number of reported cases of HIV infection from 1992-1996. The table includes case reports of those testing positive for HIV who have not been reported with AIDS through August of 1997, with case reports assigned to the year they were reported.

**Table 5: Reported Cases of HIV Infection, 1992-1996**

1992	1993	1994	1995	1996
167	232	257	257	194

Incidence of AIDS in 1996 was over 3 times higher in the black population than in the white population in Davidson County. Figure 33 below shows the incidence of AIDS by race and sex in Davidson County compared to the United States as a whole. The incidence of AIDS in the Davidson County black population is lower than that in the overall U.S. black population, while the incidence in the Davidson County white male population is higher than the U.S. white male rate. Total incidence is higher in Davidson County than in the U.S. as a whole, which is typical of urban areas.

**Figure 33: Acquired Immunodeficiency Syndrome Incidence by Race and Sex**



# Sexually Transmitted Diseases

## Key Findings

- Over the period 1990-1996, gonorrhea incidence in Davidson County has fluctuated and recently decreased.
- Chlamydia incidence has increased steadily over 1990-1996.
- Primary/secondary syphilis incidence decreased through 1995 but increased in 1996.
- Davidson County incidence rates for gonorrhea, chlamydia, and primary/secondary syphilis are higher than those for Tennessee and the U.S. as a whole.
- Reported incidence rates for all three diseases are 7 to 34 times higher in the black population than in the white population in Davidson County.

## Trends and Observations

Over 1990-1996, rates of reported cases of gonorrhea in Davidson County have fluctuated, and recently shown decreases from a high in 1994 of 589 cases per 100,000 to 380 cases per 100,000 in 1996 (Figure 34). Nationally, rates of gonorrhea declined steadily from 1990 through 1994 when they stood at 168 per 100,000<sup>14</sup> (Figure 35).

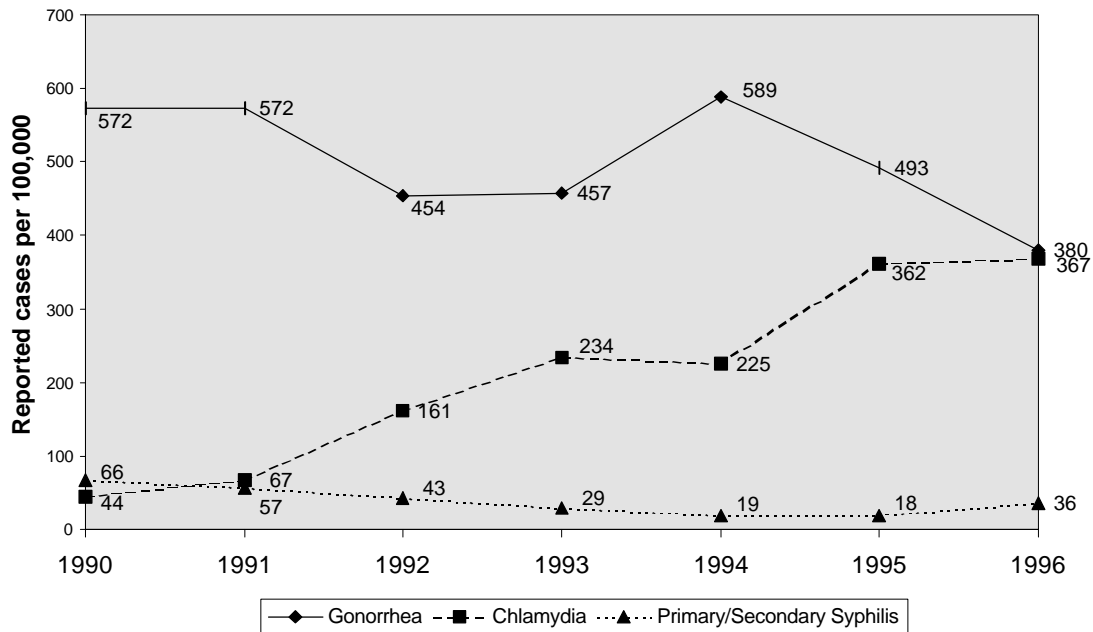
In contrast, rates of chlamydia cases reported have increased in Davidson County from 44 per 100,000 in 1990 to 367 per 100,000 in 1996, an increase of over 8-fold. Nationally, chlamydial infection is the most common infectious disease notification to state health departments and the CDC. During 1987-1995, the annual reported rate of chlamydial infections in the U.S. increased from 47.8 to 182.2 cases per 100,000<sup>19</sup>. State-specific rates for women ranged from 46.4 to 622, with rates highest in western and midwestern states; the overall rate for women was nearly six times higher than that for men.

Primary and secondary syphilis rates in Davidson County showed decreases until 1996, when rates doubled over those reported for 1995. Nationally, 1990 rates of 20.3 cases of primary or secondary syphilis per 100,000 were the highest seen since the 1940's and approximately 10-fold higher than in other industrialized countries, and use of crack cocaine and exchange of sex for drugs were considered important contributors to this epidemic<sup>20</sup>. The national rate had declined to 8.1 per 100,000 by 1994<sup>14</sup>.

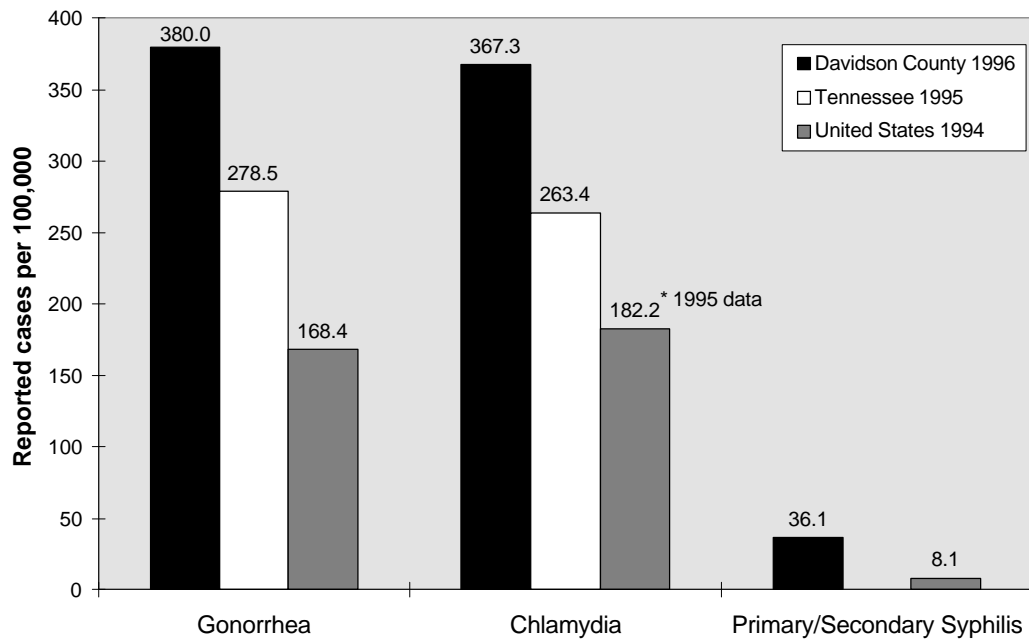


# Sexually Transmitted Diseases

**Figure 34: Sexually Transmitted Disease Rates  
Davidson County, 1990-1996**



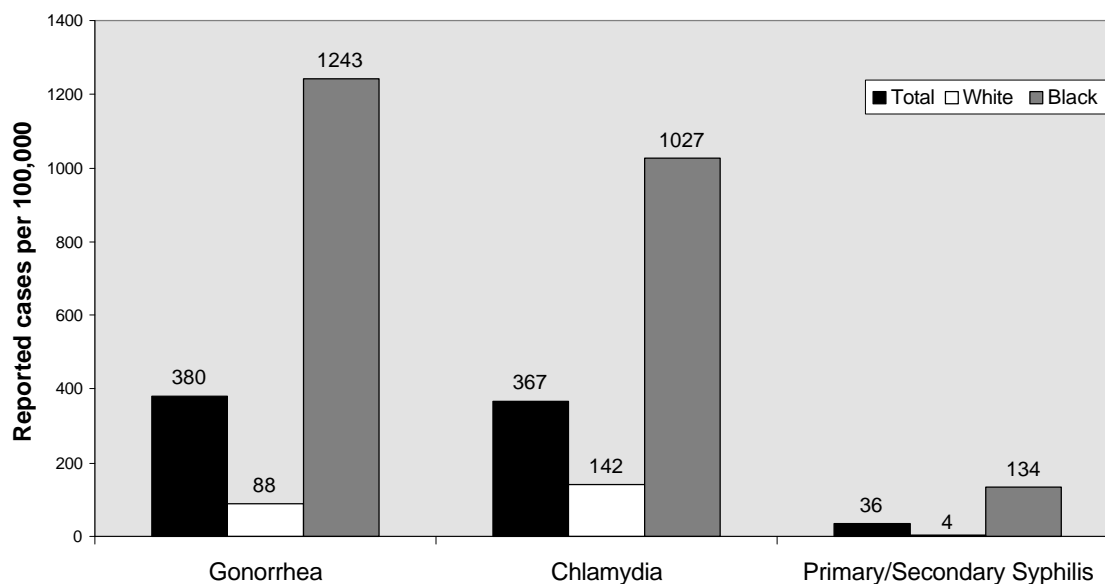
**Figure 35: Comparison of Sexually Transmitted Disease Rates  
in Davidson County, Tennessee, and the United States**



## Sexually Transmitted Diseases

Incidence rates for these sexually transmitted diseases vary considerably by race. As illustrated in Figure 36, rates in the black population for gonorrhea, chlamydia, and syphilis are 7 to 34 times higher than rates in the white population.

**Figure 36: Sexually Transmitted Diseases Rates by Race  
Davidson County, 1996**



## Data Sources and Methods of Analysis

Data on births and deaths in Davidson County were compiled from birth and death certificates by the Tennessee Department of Health and provided in data files to the Metropolitan Health Department of Nashville and Davidson County. Summary natality statistics for Davidson County were also obtained from *Picture of the Present, Part 2*, years 1990-1995, prepared by the Office of Health Statistics and Information, Bureau of Health Services, Tennessee Department of Health. The Tennessee Department of Health also provided data on sexually transmitted diseases and AIDS/HIV. Other divisions within the Metropolitan Health Department of Nashville and Davidson County provided communicable disease data including tuberculosis data.

Population estimates used in calculating rates for Davidson County were prepared by the Department of Sociology, University of Tennessee under contract to the Tennessee Department of Health and updated in August 1997. Population estimates at the planning district level were calculated from 1990 Bureau of Census data and projected in accordance with county-level estimates provided by the Tennessee Department of Health. Average rates provided for planning districts do not agree with county-wide averages because of differences in population estimates used for the denominators.

When presenting rates of teen birth and infant mortality at the planning district level (Maps 2 and 3), rates were not presented when fewer than 20 events occurred over the 7-year period averaged. These instances are shown on the maps by white shading indicating “unstable rates.” For Maps 4-10 of average premature mortality by cause, rates were not presented when the standard error exceeded 25% of the Years of Potential Life Lost over 1990-1996. Standard error was calculated as:

$$SE = \sqrt{\sum (65 - \text{age at death})^2}$$

Or in words, the square root of the sum of the YPLL for each death squared.

The 1996 Nashville Health Risk Behavior Survey was a telephone survey conducted for Partners for a Healthy Nashville by Solution Point, Inc. between June and October, 1996. The survey questionnaire was based on the 1996 fixed core Behavior Risk Factor Questionnaire, the 1996 exercise module, the Functional Health Status SF-12, and supplemented with additional health insurance and care questions. The sample of 2800 Davidson County residents was stratified so that at least 200 residents from each of the 14 Davidson County planning districts responded. Average response rate was 47% (range 39-63%). Maps 11-16 show percentage responses from specific planning districts for selected risk factor questions. The county-wide percentage presented is an average weighted to reflect the planning district population sizes.

## Glossary

**Abortion** - induced termination of pregnancy

**Adequate prenatal care** - based on the Kessner Index, prenatal care begun in the first trimester of pregnancy and including nine or more visits for a 36-week pregnancy

**Age-adjusted mortality rate** - death rates statistically adjusted to account for differences in the age distributions of populations

**AIDS** - acquired immunodeficiency syndrome, the late clinical stage of infection with the human immunodeficiency virus (HIV)

**Birth rate** - births per 1,000 female population in the age group specified

**COPD** - chronic obstructive pulmonary disease (ICD-9 codes 490-496)

**Chronic liver disease** - includes chronic hepatitis and cirrhosis of the liver (ICD-9 code 571)

**Healthy People 2000 targets** are goals for the year 2000 set as part of the nation's efforts for disease prevention and health promotion. Year 2000 objectives are periodically reviewed and revised as necessary to remain challenging and relevant.

**Heart Disease** - includes rheumatic fever and rheumatic heart disease, hypertensive heart disease, hypertensive heart and renal disease, ischemic heart disease, diseases of pulmonary circulation, and several other forms of heart disease (ICD-9 codes 390-398, 402, and 404-429)

**HIV** - human immunodeficiency virus, a retrovirus that attacks the immune system and is spread through sexual contact or exposure to blood or tissue

**Infant Mortality Rate** - deaths to infants less than 1 year old per 1,000 live births in that year

**Low Birthweight** - weighing less than 5.5 pounds or 2,500 grams at birth

**Mental Disorders** - includes senile, presenile, and other dementias; alcoholic, drug, and other psychoses; and other mental illnesses (ICD-9 codes 290-319)

**Neonatal** - the period from birth to less than 28 days old

**Nervous system diseases** - includes diseases of the central nervous system and the sense organs (ICD-9 codes 320-389)

**Post-neonatal** - the period from 28 days to 1 year of age

**Premature mortality** - deaths which occur before age 65, measured using Years of Potential Life Lost

**Stroke** - cerebrovascular disease (ICD-9 codes 430-438)

**Teen birth rate** - in this report, emphasis was placed upon birth rates in teens 15-17. Unless otherwise noted, rates represent number of births to teens 15-17 years old divided by the population of teens 15-17 years old.

**Unintentional injury mortality** - this category includes deaths from falls, motor vehicle accidents, drowning, choking, environmental factors, etc.

**Very Low Birthweight** - weighing less than 3.5 pounds or 1,500 grams at birth

**Years of Potential Life Lost (YPLL)** - a measure of premature mortality calculated by subtracting age at death from 65. Thus the death of a person at 40 years of age contributes 25 YPLL to the total for the county.

**Years of Potential Life Lost (YPLL) rate** - years of potential life lost per 100,000 people under age 65

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